

Environmental Attitudes of Homeschoolers in Canada

by

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Abstract

Environmental attitudes are shaped by a variety of factors including our educational history, cultural background, childhood and life experiences, and past and current interactions with nature. This research set out to examine attitudes toward the environment in an understudied but growing segment of the Canadian population, homeschoolers. The purposes of this study were to investigate whether environmental attitudes in Canadian homeschoolers differ from those of people involved with public school and to acquire a greater understanding of the factors that affect the development of these attitudes. The mixed method, follow-up explanatory research design utilized the New Ecological Paradigm Scale and the Connectedness to Nature Scale in an internet survey. The survey was sent to homeschooling and parent groups across Canada. Subsequently, interviews were conducted with a subsample of respondents.

The results of the survey showed that demographic variables were not significantly related to environmental attitude scores with the exception of locale and religion. Urban respondents had slightly stronger environmental attitudes than rural respondents. The confluence of homeschooling and religiosity emerged as the key factor influencing environmental attitudes. There was no significant difference between environmental attitudes of homeschoolers and public schoolers until importance of religion was taken into account. As measured by the scales, religious homeschoolers exhibited the weakest environmental attitudes, public schoolers were in the middle, and not-as-religious homeschoolers had the strongest environmental attitudes. The qualitative data supported these results, with religious homeschoolers expressing weaker

environmental attitudes, particularly in terms of climate change and the need for a more sustainable lifestyle.

Religious homeschooling respondents favoured a more structured back to basics style of schooling which also correlated with lower environmental attitude scores.

Unstructured homeschooling respondents tended to choose a child-centred philosophy of education which was correlated with stronger environmental attitudes.

During the interviews, respondents were asked to reflect on what in their lives had influenced their attitudes toward the environment. Consistent with other literature, unstructured outdoor time as a child remained the most significant factor, cited by a majority of respondents. Other important factors included religion, parents, school, teachers, TV/media, economic necessity, and negative experiences with environmental pollution.

The results of this study highlight the importance of considering variables associated with religion when exploring the development or level of environmental attitudes or when conducting a study of homeschooling. Religious beliefs are complex and highly personal in some cases, as is their corresponding influence on environmental concern. Potential exists for environmental concern and action from a group of spiritual people with strong community bonds and often political involvement. The key may be finding common ground and learning to communicate, while resisting expectations of complete agreement. This dissertation showed that stepping outside of the educational system does not necessarily have a direct impact on environmental attitudes, as they are mediated by a complex array of variables. Homeschooling may not directly generate a different level of environmental attitudes than public school; however, religious

homeschoolers definitely have a different set of attitudes toward the environment that deserve further in-depth study.

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Chapter 1: Introduction

The ecological crisis appears to be worsening. Our society has great challenges ahead, particularly global climate destabilization, and yet some people are still struggling just in recognizing the impact that humans have had on the planet. In observing our slow progress addressing environmental challenges, it is important to consider how environmental attitudes and values develop, as without them we will never succeed in making the necessary changes to our lifestyles. Our attitudes toward the environment are an amalgam of our background (cultural, religious, educational, etc.), childhood and life experiences, and our past and current interactions with nature. As there is hope that the upcoming generations will be better stewards of the Earth, there is also a sense that young people must be taught to value the Earth and feel responsibility for its care.

Research Question

My dissertation probes what factors play a role in influencing the development of environmental attitudes, with particular focus on educational models. My research design compared environmental attitudes of homeschoolers to those involved with public school (parents and former students), using a combination of qualitative and quantitative methods. The two overarching research questions were:

1. Do environmental attitudes differ between homeschoolers and those involved with public school?

2. What factors affect the development of environmental attitudes in homeschoolers and those involved with public school? Are the factors similar in the two cases?

In order to begin to form an answer to these questions, this project surveyed former students and parents (both homeschooled and public schooled) to determine their level of environmental attitudes. Statistical procedures were then used to determine if there were any correlations between environmental attitudes and other variables, such as demographics, educational model, educational philosophy, and time spent outside. It was acknowledged that many factors could influence environmental attitudes and this research project only added a piece to the puzzle.

The follow up qualitative interviews served to add depth and complexity to the analysis. Interviews investigated how respondents believed their life experiences had an impact on their environmental attitudes. The more we know about how various types of people come to have environmental attitudes, the more successful we will be in eventually achieving more environmental behaviour. As a researcher, my long term research goal is to advance the knowledge base regarding what factors contribute to environmental consciousness in the Canadian citizen.

Need for Research

As an environmental activist, I have educated myself on a wide range of environmental issues, met with government and corporate officials on addressing these issues, and watched the number of environmentally related news stories multiply on the news. I have worked on many public awareness campaigns and tried to influence policy and legislation. Despite the sense that awareness is definitely growing and laws are

becoming more stringent (at least until recently), I cannot help but feel that we are not making any real progress on environmental issues and time is running out.

I ask myself why people in our society behave the way they do, at times seemingly with no regard for the earth. Is it because they do not know any better? Perhaps; however, many are aware and know of the actions they can take that will help the environment. Is it because they don't care? I know many of them do care. They care about the animals and forests and future generations who may not be able to enjoy clean air and water. So, why do our daily actions often not reflect this concern?

We all possess deeply held values, attitudes and beliefs that often are never articulated but shape all of our actions. Our biggest environmental problem in western society is a lack of environmental values and attitudes. We have a deep disconnect to the natural world and because of that we do not place the environment high enough on our priority list, though it sustains our very life.

Not everyone is feeling this disconnect; some people are managing to live a sustainable lifestyle and many young people have aspirations to live that way. I thought about the young people I know who are extremely engaged in the environmental community and wondered what factors in their lives influenced their environmental attitudes. Obviously, there are many influential factors and determining the relative importance of each factor may be quite impossible. However, I wondered what role education played and whether the experience of an alternative type of education would result in a different level of environmental attitudes.

I started reading about different types of education: experiential education, democratic education, homeschooling, freeschooling. John Holt's (1969, 1981) work on

how children learn evoked questions about how traditional schooling influences feelings of connectedness between children and their families and communities and how the structure of school interacts with development of curiosity or, conversely, feelings of alienation. Further reading brought me to E.O. Wilson's work on biophilia and how we may have an innate attraction to the natural world (Kellert & Wilson, 1993; 1978). An important question emerged: How would an alternative style of education influence our inherent attraction to nature? Obviously a simplistic answer is not possible; but these questions led me to explore how families who have chosen an alternative educational model may differ in the development of environmental values and attitudes.

Looking deeper into the literature on non-traditional schooling revealed that there is anecdotal evidence that children taught in a freeschool manner may feel a strong connection to their communities, to the natural world, and to their families (Holt, 1981; Ray, 2000a). Free-schooling children are reported to be imaginative, self-reliant and to possess strong critical thinking skills (Isenberg, 2007). However, comparative studies with children who have experienced public school are very limited and much more research is needed in order to draw any conclusions about the factors that may lead to these positive traits. As well, there is a lack of formal study of the ideas surrounding the connection between environmental attitudes and alternative forms of education.

For those who want to understand environmental attitudes in Canada, it will be of interest to find out if those families who have chosen to withdraw from the public school system have a different environmental worldview. There is a lack of literature on Canadian homeschooling in general, with most of the research conducted so far having been focused on the United States. Understanding the levels of environmental concern

among homeschoolers may shed new light on possibly influential factors. With the multitude of environmental problems facing us today, it is vital that we improve our understanding of factors influencing environmentally-concerned citizens.

A Planet in Trouble

Our planet is facing an environmental crisis of unprecedented scale. The levels of carbon dioxide in our atmosphere are 30% higher than at any time in the last 650,000 years. Most of this carbon dioxide has been emitted by the western, developed world, and Canada is one of the worst culprits. The Millennium Ecosystem Assessment (2005) indicates that 60% (15 out of 24) of the ecosystem services that humans depend on for our sustenance are degraded or used unsustainably and that “the ability of the planet’s ecosystems to sustain future generations can no longer be taken for granted” (p. 5). This concern is not new; a similar argument was made in the 1972 Limits to Growth study (Meadows, Meadows, Randers, & Behrens, 1972) and can even be traced as far back as Malthus with his concerns about population growth over two hundred years ago (Ponting, 1991). However, scientists’ warnings are reaching a fever pitch, suggesting we have little time left to change our behaviour. Whether or not these warnings come to pass, it may be prudent for our society to shift onto a more sustainable path.

In response to these studies and warnings, regulations have been enacted and some actions taken, but our society’s response has been inadequate in terms of real results. For our civilization to survive this crisis, it will take a lot of changes: individual change, societal change, political change. Despite polls over the years showing that environmental concerns were widely supported (Coyle, 2005; Research, 2006;

RoperASW, 2002), these attitudes have not translated into action, either at the individual level or the political level (Gardner & Stern, 1996; Kempton, Boster, & Hartley, 1995; Speth, 2004; Vogel, 1996). We must do better at strengthening environmental attitudes as an important part of putting our society on the path to sustainability.

Education - Part of the solution

It may fall to the next generation to deal with the consequences of our failure to act, in which case, we at least have a duty to use this time to educate our youth and develop in them the environmental values, attitudes, beliefs and overall worldview that will influence them to behave more sustainably. Parents and the community at large have a large role to play; however, since the 1970s, we have often looked to the education system to develop knowledge and concern about the environment. International efforts, such as the Tbilisi conference in 1977 (UNESCO, 1980), the emphasis on education in Agenda 21 (UNCED, 1992) and the UN Decade of Education for Sustainable Development (2005-2014), have tried to raise the profile of environmental education and highlight its importance.

As initiatives to include environmental education in schools have been increasing, many studies have been conducted to examine the effectiveness of these educational efforts. Some research has shown that environmental education programs can have a positive impact on environmental values and attitudes (Arcury, 1990; Fransson & Garling, 1999; McMillan, Wright, & Beazley, 2004) and sometimes that leads to more sustainable behaviour (Benton, 1993; Newhouse, 1990; Smith-Sebasto, 1995). Other studies have concluded that education is only part of the solution, due to various

structural barriers that prevent action (Gardner & Stern, 1996; Kaiser, Woleing, & Fuhrer, 1999).

In response to the call for more environmental education curriculum, the educational system has generally instituted classes on the environment, or units of curriculum on aspects of environmental problems (Kahn & Weld, 1996). In addition, some schools have transformed their schoolyards into natural areas to play and some school boards have instituted outdoor educational programs—all in an attempt to better integrate nature into the curriculum. Many schools have started original and innovative environmental education programs that emphasize interdisciplinary and active learning, often including connecting with the wider community and spending time outside of the classroom (Hart, 2008). The formal school system can definitely be a part of the solution as to how we will raise a generation of students who care about the environment and who have the skills and motivation to act in a sustainable fashion.

Education – Part of the Problem

Although schools are making efforts toward effective environmental education, critics point out that what educators have done so far may only be working in a limited way. We are not yet sure what types of education about the environment will best accomplish the goal of creating more active, sustainably-living citizens (Kahn & Weld, 1996). Followers of conflict theory accuse our current education system of focusing too much on material success. They argue that the school system serves to create artificial wants, doesn't allow enough family or outdoor time, and feeds into a consumerist mentality (Ballantine & Spade, 2008; also see Gatto, 2001; Holt, 1969; Orr, 1993). On

the other side of the spectrum, some contend that progressivism in the Canadian school system has resulted in youth with no discipline, no work ethic and few skills, with no commitment to community (Holmes, 1998). Calls for reform in education are continuous but solutions vary depending on the source.

Regardless of political stripe, there is concern that apathy and disconnection from civic life appears to be high among young people (Eliasoph, 1998; Hern, 1996; Postman, 1996), and environmental educators see a clear link between this trend and our environmental challenges as a society. David Orr (1993) argues that “much of what has gone wrong with the world is the result of education that alienates us from life” (p. 26). Worthy (2008) blames our feelings of alienation and dissociation for the environmental problems we are faced with since if we don’t feel connected to community or nature then we don’t feel obliged to protect it. As we deal with these challenges on multiple levels, it may be important to examine what role our education system plays in terms of creating civically connected citizens.

It has been suggested that other models of education may reduce alienation (Miller, 1993) and that alternative forms of education, particularly unstructured freeschooling, may allow for more time outdoors and in the community, which may lead to greater feelings of connection (Barfield, 2002; Llewellyn, 1998; Nikiforuk, 1993). Some studies show that early affiliation with the natural world is connected to what Osborne (1999) calls democratic citizenship—well-informed, thoughtful participation in public affairs (Clayton & Opatow, 2003; Jardine, 2004). Therefore, examining opportunities that children have to spend outside may also be part of the puzzle of enhancing environmental attitudes through the education system.

Advocates of alternative education believe the goal should be more intuitive and embodied ways of knowing—more active social learning—and that this form of education will lead to more successful citizens (Davis, 2006; Glasser, 2007; Mabie-Gamble, 2001; Rivero, 2002; Staehle, 2000). If part of being a successful citizen is a sustainable lifestyle and an allegiance to the new ecological paradigm, the implication is that there may be a need to integrate connection to nature into educational outcomes. One educational alternative that has not yet been examined in the literature from an environmental consciousness point of view is homeschooling.

An alternative path – homeschooling

Although the vast majority still sends their children off to school each weekday, a growing number of parents are choosing not to send their child to school but deciding to keep them home, a trend which saw a resurgence after the shootings at Columbine High School (Kiesling, 2001). The homeschooling movement is becoming more prominent and more mainstream in North America, no longer the domain of religious fundamentalists (Romanowski, 2001; Rothermel, 2004). There is evidence that homeschoolers do equally well academically and socially as children in the public system (Jones & Gloeckner, 2004; Ray, 2004; Rothermel, 2004). Some may be under the impression that homeschooling results in isolated, socially inept, strange children while others maintain that it produces children with superior intellects and a joy of learning (Stevens, 2003). Homeschooling is an interesting phenomenon and one that has not been studied extensively, particularly in Canada. The question of how homeschoolers think and feel about the environment is one that has not yet been addressed in the literature, but

it is a question that may increase in importance as more Canadians choose this educational option.

Measuring Environmental Attitudes

There are an incredible number of tools used to measure the psychological constructs of environmental values, beliefs, attitudes, and worldviews. Consistently in the literature, researchers often are not precise about which construct in particular the chosen tool is actually measuring (Dunlap & Jones, 2002). This reflects the ambiguity in the meanings of these constructs as well as the difficulty in measuring them separately (Stern, Dietz, & Guagnano, 1995). As Handy (1970) writes, “when we know what we want to measure, we can’t measure it; where we can measure, we don’t know what we have measured” (p. 128). The important thing is to realize and acknowledge this limitation and realize that even quantitative measures include some amount of subjectivity.

The body of literature examining the theory of value and attitude formation and the effect on behaviour is extensive and it is beyond the scope of this paper to do a comprehensive review (but see Stern, Dietz, Kalof, & Guagnano, 1995). In general, when filling out a survey, people tend to refer to their general values, which are relatively stable, and also to their attitudes, which can change depending on context or their psychological moods (Shanahan, Pelstring, & McComas, 1999). Attitudes can be defined as “beliefs and feelings about an object that predispose one to behave in a consistent manner toward the object” (Tarrant & Cordell, 1997, p. 619) and are the target construct of the two scales used in this study. As Dunlap and Jones (2002) point out, in the case of

environment attitudes, ambiguity is amplified because the object ‘environment’ is not something that is experienced as one object, but as many—trees, water, landscapes, etc.—and environmental problems are numerous and interrelated. For the purposes of this study, environment is defined as the natural environment, comprised of all living and non-living things, and the term is used interchangeably with nature or the natural world. Although beyond the scope of this paper, it is acknowledged that there is a rich body of literature that deals with the natural/social dichotomy and whether it is possible to isolate the built human world from the environment (Bird, 1987; Latour, 2004; Proctor, 1998). Following the pragmatic methodology of this study, these theoretical issues are accepted as unavoidable pluralism that serves to inform our understanding (Parker, 1996; Proctor, 1998).

Environmental attitudes are largely conceptualized as synonymous with ‘environmental concern’, defined as “the degree to which people are aware of problems regarding the environment and support efforts to solve them and/or indicate a willingness to contribute personally to their solution” (Dunlap & Jones, 2003, p. 365). This construct encompasses both affective and cognitive dimensions and at times includes predispositions to behaviour (Dunlap & Jones, 2002). It is acknowledged that this construct is incredibly complex, reflecting the complexity of the environment itself.

Many studies of environmental values, attitudes, or worldviews construct a scale specific to their own study, most often Likert-type scales (Armstrong & Impara, 1991; Berberoglu & Tosunoglu, 1995; Fransson & Garling, 1999; Krause, 1993; Mangas, Martinex, Pilar & Pedauye, 1997; Thompson, Jr. & Gasteiger, 1985; Wysor, 1983).

There are some scales which have been used more often than others, such as Maloney and

Ward's 1973 Ecological Attitude Scale and Weigel's 1978 Environmental Concern Scale. Schwartz's 56-item Inventory of Human Values (Schwartz, 1992) is designed to measure values in general, and has relevance for the study of environmental values. Kempton, Boster and Hartley (1995) also developed an extensive 149 item questionnaire specifically aimed at measuring environmental values. Some other scales of note are the Environmental Consciousness Questionnaire developed by Krause (1993), the Environmental Response Inventory developed by McKechnie (Zimmerman, 1996), and the Survey of Environmental Issue Attitudes (Schindler, 1999). Having such a multitude of surveys limits the ability of researchers to compare results either between populations or over time.

For this study, the New Ecological Paradigm has been chosen to allow comparison of results with other studies. In addition, the newer Connectedness to Nature Scale is used to focus on the affective, emotional component of an individual's relationship with nature.

Delimitations

The delimitations of this study reflect that this study was a first step toward a larger research goal of understanding what key factors influence the development of environmental attitudes. This study honed in on whether there were differences in the environmental attitudes of families who subscribe to different educational approaches for their children. All participants were Canadian and data were collected during the first half of 2010. The educational models examined were limited to homeschooling and secular public schooling; private schools and public alternative schools were excluded.

People over the age of eighteen were the subjects of the study; the views of children, teachers, and other educators were not captured in the data. These limits to the study scope were intended to foster a strong focus on the research questions, and simultaneously, to manage the project scale.

The aim of the study was centred on the intersection of environmental attitudes and the chosen educational models in order to explore the differences that might exist between the two target groups: homeschoolers and public schoolers. General conclusions comparing homeschool and public school experiences and outcomes were difficult given the highly context-dependent nature of families' educational choices. This study did not explore in depth the philosophy of homeschooling specifically or of education generally (see Dunn, 2005; Holt, 1981; de Waal & Theron, 2003). A detailed examination of the philosophy of the human-nature relationship and attitude theory was also beyond the research scope (see Bird, 1987; Latour, 2004; Proctor, 1998; Stern, Dietz, Kalof, & Guagnano, 1995). Further delving into these aspects may form a foundation for post-doctoral study (Foss & Waters, 2007; Phillips & Pugh, 1994).

Key Terms

This section presents definitions of key terms used in this document in order to facilitate a common language and shared knowledge between the researcher and the reader. Throughout the rest of the text, these terms will be used under these current definitions, unless an explicit difference is mentioned.

Environmental values: “values that propose or support action directed towards environmental care and responsibility” (O'Brien & Guerrier, 1995, p. xiv).

Environment: the natural environment, comprised of all living and non-living things; used interchangeably with nature or the natural world.

Environmental attitudes: synonymous with environmental concern: “the degree to which people are aware of problems regarding the environment and support efforts to solve them and/or indicate a willingness to contribute personally to their solution” (Dunlap & Jones, 2003, p. 365).

Homeschooling: “the practice in which the education of children is clearly parent-controlled or parent-directed (and sometimes student-directed) during the conventional-school hours during the conventional-school days of the week” (Ray, 2000b, p. 71).

Un-schooling: a form of homeschooling that is child-directed and mainly based upon learning through the life experiences that daily living provides (Davis, 2006).

Public School: a tuition free, secular educational institution up to grade twelve supported by taxes and controlled by a school board.

Throughout the text, ‘she’ is used as a generic pronoun to refer to participants, partly to aid in keeping the identity of the respondent confidential.

Overview of Methods

This study followed a mixed method follow-up explanatory design, utilizing quantitative techniques in order to gain a broad understanding and then further exploring the research questions through the use of qualitative techniques. The quantitative data were analyzed for correlations between level of environmental attitudes and other variables including type of education, religion, time spent outdoors and demographics. The quantitative instrument was composed of Dunlap’s New Ecological Paradigm

attitude measurement scale (see Dunlap, 2008) and Mayer and Frantz's (2004)

Connectedness to Nature Scale as well as demographic questions loosely based on Van Pelt (2003).

Qualitative data were collected through interviews to further shed light on various factors differently influencing the environmental attitudes that people hold. These qualitative data helped to validate as well as further explore the quantitative data. Interviews were semi-structured and conversational, lasting about twenty-five minutes each. Conducting the interviews over the telephone facilitated reaching a non-representative stratified sample based on key variables. This project was undertaken with an interdisciplinary mindset in keeping with the complexity of the research goal.

Interdisciplinary world of the environment

Environmental work, in all its breadth and complexity, is unavoidably interdisciplinary, requiring a real-world focus, combination of multiple viewpoints, and foundation of synthesis. Many authors agree. Klein (1990) contends that environmental studies by definition is interdisciplinary, as it is problem centred and so deals with the complexity of issues. Graybill et al. (2006) claim, "Interdisciplinarity, in particular, is heralded as an educational paradigm that can meet the ecological challenges of the coming century" (p. 757). Newell and Green (1998) state, "The urgent problems which we face today are solvable only if we have individuals who are practiced in interdisciplinary inquiry" (p. 32). Frodeman and Mitcham (2007) see environmental studies as being "sensitive to" the need to bring different disciplines together to develop solutions (p. 511). The 1992 Earth Summit cited interdisciplinarity as "the means for

increasing our understanding of and developing solutions to pressing environmental issues" (Steele & Stier, 2000, p. 476). To deal with complex ecological problems in an academic setting may require an interdisciplinary approach in order to weave together disciplinary patterns of thinking.

Interdisciplinarity may aid in critical thinking as the environmental scholar must remember that environmental issues are "complex, non-linear, dynamic and unpredictable" (Jones, Merritt, & Palmer, 1999, p. 353). As science is relied on to inform decisions about social and economic policy, the context of "competing vested interests and contested social and environmental values" must be taken into account (Jones, Merritt, & Palmer, 1999, p. 353). An interdisciplinary scholar who is aware of the subjective component of all knowledge claims will be better able to critically analyze environmental issues (Jones, Merritt, & Palmer, 1999). Positivist assumptions that may be held by the biophysical environmental scientists must somehow mesh with and share power with the more interpretive nature of social scientists (MacMynowski, 2007). This synthesis between natural and social science has not yet been fully achieved (Salter & Hearn, 1996). Klein (2004) writes, "Sustainability is a major testing ground for integrating science with both humanities and social sciences" (p. 6). No universal truths may ever emerge from the complex study of our living environment.

Interdisciplinary work tends to focus on real-world interconnected problems and endeavours to develop complex solutions. It allows a researcher to ask the broad questions, to take answers from various places, to walk the boundaries. In conducting environmental research, it is evident how important integration and synthesis is to seeing the wider context, the larger scale, the long-term importance, and in the end guiding

policy by coming up with meaningful solutions (Brewer, 1999). There are so many aspects to any given environmental problem that the solutions need to be holistic, in the sense that we need to examine the functional relationships of each aspect of the problem. Because environmental problems always involve humans, in order to develop a rational solution, human behaviour must be part of the equation, and synthesizing knowledge from multiple disciplines can result in a more complete answer.

In the early 1980s, Lynton Caldwell (1983) called for environmental studies to become a metadiscipline. He sees that environmental studies "represent a latent and fundamental restructuring of knowledge" (p. 247). Solving the planet's problems cannot be done in a piecemeal and ad hoc fashion, one specific issue at a time, but require fundamental shifts in how we view ourselves and nature. Therefore, it is important that environmental studies incorporate true synthesis "to form new information and insights not directly deducible from any one of the disciplines" (Caldwell, 1983, p. 257).

An interdisciplinarian working on environmental issues is able to remember that underpinning the physical are the "embedded patterns of thought and value" (Foster, 1999, p. 361). Failing to take this holistic viewpoint, to look at the wider context, have led to disasters such mutagenic fire retardants in children's nightwear, the unintended consequences of the economically successful drug, thalidomide, and countless other examples of specialists not considering unintended social impacts of research products (Nissani, 1997). Nissani (1997) quotes Roy (1979), "Recent history is filled with cautionary tales all showing the dangerous, sometimes fatal, narrowness of policies recommended by those who possess expert knowledge" (p. 8).

Interdisciplinarity has the capacity to forge relationships between science and innovation and integrate research with society and the economy, leading to more applicability (Barry, Born, & Weszkalnys, 2008). They contend that interdisciplinary interventions "encourage publics and governments to 'buy into' the results of the research" and "they may make scientific institutions more responsive to the demands and concerns of non-scientists" (Barry, Born, & Weszkalnys, 2008, p. 32). Working within this wider context requires input from many disciplines, to understand all the parts of the problem and the relationships between the parts while keeping the whole in mind (Brewer, 1999).

Any given environmental problem is composed of interrelationships of natural, social, economic, and political aspects. Each aspect of the problem influences the others and is interconnected with the others – nothing can be considered individually. Real solutions therefore, transcend all disciplines, as they must be thorough and inclusive if they are to actually impact the problem.

An Interdisciplinary Project

Interdisciplinary work can confer some definite benefits to scholars choosing this path: the ability to work on real-world problems, the ability to be creative and flexible, and the ability to develop new and integrative ideas that may benefit society. These benefits are particularly relevant for grappling with environmental problems. In this project, literature and ideas around alternative models of education and the development of environmental attitudes are brought together in a new way that requires drawing on multiple disciplines. Staying within one discipline could limit the types of questions asked and the types of analysis conducted. The complexity of the research question will

be well served by integrating knowledge from several disciplines, including sociology, education, and psychology, as well as environmental studies.

Sociology brings awareness and understanding of educational structures, how various forms of education have emerged, and the complexity of educating a society, with all of the different and competing interests and goals that entails, from producing willing workers for the industrial manufacturing system, to competing in the knowledge economy on the world stage (Worther spoon, 1998). Psychology and sociology both have important insights into human behaviour, crucial for understanding the roots of our environmental problems and for developing possible solutions (Gardner & Stern, 1996). The child development aspect of psychology helps us to understand how children grow up to care about nature and how nature can become part of our identity (Crain, 2005). Lessons from the discipline of education show that in school we not only assimilate information but we also assimilate cultural values and beliefs. The melding of environmental psychology and education shows how important both are if we are to encourage pro-environmental attitudes and behaviour. Examining education practices alone will not be sufficient to change psychological values and attitudes, nor will it be sufficient to examine the impact of our educational structure on society. Combining and synthesizing ideas from all of these disciplines will result in a more complex and rich analysis.

This research project is also interdisciplinary in that it is using mixed methods, combining quantitative and qualitative methods. It is a pragmatic approach that adds complexity and depth to the analysis. This interdisciplinary framework allows the integration of various salient points that may not have otherwise seemed to fit together. In the end, for this project, the disciplines are not the focus; the questions are the focus.

Homeschooling, autonomous learning, connection with nature, environmental concern – these are concepts that at first glance may not seem to fit seamlessly. However, this research explores whether there is a relationship between educational models and environmental attitudes, whether one aspect is reaching over and tapping the other on the shoulder without anyone realizing it. It is multifaceted, it is complex, and it is interdisciplinary.

Overview of Chapters

The goal of this dissertation is to join the conversation surrounding the development of environmental attitudes and to query how a different educational model may have an influence. Chapter 2 provides detail as to the research methods utilized. A review of the benefits and downfalls of internet surveying serves to justify the choice of this still somewhat new tool. The two scales chosen are reviewed and a reliability analysis is presented. The techniques used in choosing interview participants are explained and the demographics of the participants are described. Finally, this chapter explores the limitations of the study, both quantitative and qualitative.

Chapter 3 focuses on the demographics of the survey participants, exploring the data to determine links between these variables and levels of environmental attitudes. Literature regarding the demographic characteristics of homeschoolers generally is also contained here. Chapter 4 examines why parents choose to homeschool. Chapter 5 gets into the heart of the research question, exploring how homeschoolers and public schoolers differ in their environmental attitudes. This analysis uncovers the importance of religious variables, which are then analyzed in Chapter 6 in more detail. In the seventh chapter,

religious variables again play an important role, this time in relation to educational philosophies and the structure of homeschooling. Chapter 8 delves into significant life experiences, with a focus on the qualitative data. It also touches on the questions of how much time homeschoolers and public schoolers spend outdoors versus watching television or playing video games. Chapter 9 provides a summary of the study and investigates some implications, with suggestions for future research.

Chapter 2: Research Design

This study used a mixed methods research design in order to compare environmental attitudes of homeschoolers to those involved with public school (parents and former students age 18 and up) and to explore what factors may influence environmental attitudes in these two groups. The New Environmental Paradigm scale and the Connectedness to Nature scale were administered through an Internet survey to homeschoolers and families who take part in public school, along with a series of demographic-type questions. For a selected portion of the sample, follow-up semi-structured interviews were conducted by phone. It was fully acknowledged that the constructs involved in this study were extremely complex and influenced by many factors; therefore, no claims of causation were made. Research Ethics Board approvals were obtained from Laurentian University and Brock University (Appendix 1). All federal Canadian privacy laws were followed.

Mixed Methods Study Design

The mixed methods model used is the follow-up explanatory model, where qualitative data help explain and build on the initial quantitative results (Creswell & Clark, 2007). Preliminary analysis of the quantitative data informed the selection of interviewees, thus connecting the two data sets.

A pragmatic approach was taken in using both quantitative and qualitative methods, valuing both objective and subjective knowledge and working in an interdisciplinary manner. In this approach, the research question was paramount and the aim was to find practical answers by honouring the complexity of the topic and using a diversity of approaches. Following the pragmatic tradition, this was an explicitly value-oriented approach (Johnson & Onwuegbuzie, 2004), as the wider goal was to contribute knowledge toward a solution to our environmental crisis. As Johnson and Onwuegbuzie (2004) explain, “Its logic of inquiry includes the use of induction (or discovery of patterns), deduction (testing of theories and hypotheses), and abduction (uncovering and relying on the best of a set of explanations for understanding one’s results)” (p. 17). The pragmatic framework of this study allowed for the possibility of objectivity and value-neutrality in the positivist quantitative tradition, while also incorporating the idea that construction of meaningful knowledge could allow for interpretation through qualitative elements.

Quantitative methods

Two attitudinal scales were used to measure environmental attitudes in the sample: the New Ecological Paradigm scale (NEP) (Dunlap, Van Liere, Mertig, & Jones, 2000) (Appendix 2) and the Connectedness to Nature Scale (CNS) (Mayer & Frantz, 2004) (Appendix 3). The survey also included demographic-type questions based on Van Pelt (2003) and Ray (1994) (Appendix 4). Data was analyzed using SPSS Version 19; the various statistical tests are detailed as the results are discussed.

Internet Surveys

Internet surveys are becoming an increasingly popular choice with researchers (Bracken, Jeffres, Neuendorf, & Atkin, 2009). This is partly due to the declining response rate to telephone surveys, reported to be as low as 7%, with the popularity of "gatekeeper technologies like Caller ID and answering machines" (Braunsberger, Wybenga, & Gates, 2007, p. 758). Web surveys allow access to a large number of potential respondents and have had success in generating a high response rate. In one study, 73.79% of people invited to participate clicked through to the survey and only 11.3% of those did not complete the survey (Braunsberger, Wybenga, & Gates, 2007). Supersurvey.com (Hamilton, 2009) conducted a meta-analysis of 199 surveys and found the median response rate to be 26.45%. In surveys with a sample size of less than 1000, average response rate was 41.21% (Hamilton, 2009). Supersurvey.com recommends a run time of at least two weeks, although they have found that over half of survey responses arrive in the first day. They also report the best time of the day to send out the initial invitation is at the beginning of a workday, for greatest response rate. Quality of data has been found to be comparable in phone, postal and web surveys (Coderre, Mathieu, & St. Laurent, 2004). In a test-retest study, data collected through online surveys are found to have greater reliability than data collected through telephone surveys (Braunsberger, Wybenga, & Gates, 2007).

Other advantages to web based surveys are that they are self-administered and the data are entered into a spreadsheet without human intervention, practically eliminating transcription errors, and greatly increasing efficiency (Gosling, Vazire, Srivastava, &

John, 2004). Also, there is no interviewer bias and less social desirability bias (Braunsberger, Wybenga, & Gates, 2007), particularly important in environmentally-related studies as people are sometimes eager to give a 'politically correct' answer.

A downside to web surveys is that they may not be representative (Bracken, Jeffres, Neuendorf, & Atkin, 2009) and there are limitations regarding self-selection (Rideout, Hushen, McGinty, Perkins, & Tate, 2005). Gosling et al. (2004) analyzed self-selected internet samples in comparison with traditional paper-and-pencil surveys and found that the internet samples were more diverse than the traditionally obtained samples in some respects, but not representative. Online surveys may not be suitable for recruiting the elderly, homeless, illiterate or those without electricity, but will reach physically handicapped, shy individuals who may not respond to traditional recruitment methods (Gosling, Vazire, Srivastava, & John, 2004).

So far the literature suggests that internet based findings are consistent with traditional samples (Gosling, Vazire, Srivastava, & John, 2004). Any limitations are often shared with traditional sampling methods and may be offset by the ability to reach a large sample size.

My Survey Sampling Method

The Internet survey was constructed using the FluidSurveys.com website and pilot tested for any formatting issues. The final survey was then circulated to the email mailing list of the Home School Legal Defence Association of Canada (HSLDA), in the form of an email with information about the research and a clickable link. An incentive of an entry into a draw for a gift certificate to a bookstore was used to encourage participation.

An age limit of 18 and over was placed on respondents in order to respect the age of consent in Canada.

The HSLDA has over three thousand members and according to the Executive Director, Paul Faris (personal communication, June 2009), these members are spread across Canada, representing rural and urban families of many religious persuasions and having children of various age groups. A snowball sampling technique, or Invite-a-Friend, was used to capitalize on the viral nature of the Internet and increase participation.

With snowball sampling, members of the target population recruit other members. In a mail survey of smokers, Etter and Perneger (2000) found that the snowball technique doubled the response rate. This technique has also proven very successful with online surveys. In one study, only nine original surveys were sent out and a target sample size of 150 was exceeded, with more than half of recruits going on to recruit new respondents (Wejnert & Heckathorn, 2008). Forwarded emails are less likely to be seen as spam because they are coming from someone the recipient knows. Also, a degree of matching is present in snowballing sampling technique where respondents are likely to forward information on the study to people who are similar to them in terms of personal characteristics (Kendall et al., 2008; Wejnert & Heckathorn, 2008).

For the current study, at the end of the survey each recipient was asked to enter up to five emails in each of the following categories: a parent who is or has been homeschooling a child; a person who is being or has been homeschooled; a parent who has or has had a child in public school; a person between the ages of 18 and 25 who has attended public school. For every email that they entered into the snowballing section,

they received another entry into the draw. A recruitment email was then sent to the email addresses provided.

Tell-a-Friend is a common marketing technique, with a response rate as high as 30% as reported by Demographix.com (2009), an online survey company. This method involves slight privacy issues as far as people having to enter other people's email addresses. Other studies have dealt with this problem by having a unique code serve as a password to the survey site (Wejnert & Heckathorn, 2008), an option which was cost prohibitive for this study. In the current study, all emails were handled confidentially and deleted after the recruitment email was sent. There is a small possibility of multiple responses from the same person; however, the data were inspected to determine if unique email addresses were entered for the ballot. In this way, this risk was minimized.

The second step in the recruitment strategy for this study was Internet river sampling. An Internet river sample is defined as recruiting a "continuing flow of potential respondents" through posting links to the survey on various web sites, and has been called "the virtual analog to mall intercepts" (Farrell & Petersen, 2010, p. 121). In this technique, it is important to keep the invitation short and non-technical, with a link to a more detailed consent form (Alessi & Martin, 2010). For this study, a short invitation with a link to the survey was posted on more than one hundred homeschooling support groups, parenting forums, and Facebook pages. Care was taken to ensure that these sites were Canadian in origin and in membership. Any forums posted to were monitored for any questions and to ensure that forum members were not complaining that the research link was spam.

River sampling can be especially effective when the population of interest forms a sort of virtual community, visiting similar types of webpages and forums (Alessi & Martin, 2010). In this case of this study, there were many homeschooling websites that were suitable recruitment forums. The more general category of public school parents was more difficult to reach as being a parent is not a specific-enough topic for someone to join a particular forum. An effort was made to target web forums that were frequented by parents, such as those associated with Canadian parenting magazines.

The internet survey was launched at approximately 9am on Tuesday, May 18th by the Home School Legal Defence Association via their email list. Within 24 hours, 303 responses were received, with 247 emails provided for snowballing purposes (Table 1). Within 72 hours, 378 responses were received, with a further 60 snowballing emails provided. Also, several people sent emails to report that they would post the link to the survey on Facebook pages and list serves.

Table 1: Survey Response Rates Over Time Using Different Recruitment Methods

Mails	Time elapsed	Accumulated Responses	Snowballing Emails Provided
First invitation	24 hours	303 (31% of total)	247
First wave of snowballing	72 hours	378 (38%)	60
Second wave of snowballing	9 days	425 (43%)	157
First river sampling	13 days	648 (66%)	109
Third wave of snowballing	20 days	761 (77%)	61
Second river sampling	27 days	837 (85%)	89
Closure of survey	60 days	986 (100%)	

After the first two weeks, the technique of river sampling was implemented, with a further 223 responses received after four days, and another 109 emails provided for

snowballing. A third wave of snowballing followed shortly after, boosting the responses a further 113, for a cumulative total of 761. A second implementation of river sampling followed in the next week, bringing in another 149 responses. The survey was then left active for a further 30 days without any further recruiting.

In general, an overall response rate is impossible to determine given the lack of information about the number of people who were exposed to the survey. Out of the initial distribution list of 3000, the first day response rate was around ten percent.

However, once the survey is distributed beyond that by participants and through forums, it is impossible to tell how many people simply chose not to click the link. As a result, it is difficult to know whether responses were due to a certain recruitment technique, other than indirectly by the date. A possibility for future research is to ask participants where they had seen the link to the research, which may give some insight into which recruitment methods were more successful.

Missing Data Analysis

Completion rate for this study was approximately 60%. The quality of the data was high in completed surveys, with minimal missed answers and no evidence of problems such as respondents choosing all the same answer. It appears that those who completed the survey did so thoughtfully, while that those who failed to finish the entire survey only completed a few of the first questions and then stopped. Perhaps they were interrupted or decided the questions were too hard or not of interest. It is unfortunately impossible to know.

Of the received surveys, 713 were included in the analysis. Any respondents that did not complete enough of the survey to be meaningful were discarded, including any cases that did not fill out the sorting question, that did not fill out at least 80% of each attitude scale, and that did not fill out at least 80% of the demographic questions. Any cases that did not fit into the sorting categories were also not included in the analysis.

An examination of missing values was undertaken using the Missing Value Analysis package of SPSS (v.19). The majority of variables had less than 5% of values missing, suggesting it is unlikely that the results were influenced (Tabachnick & Fidell, 2007). The exception were the questions relating to spouses, which had a consistent missing score of around 20%, suggesting that there is a subsample of single parents. This is supported by the 'other' comments where some people noted that they did not have a spouse and also through examination of cross-tabulation of demographic variables showing patterns where a missing value for spouse correlated with an age range of 18-25, and a lower income level, suggesting a young single person. In addition, univariate t-tests on variables with more than 5% missing values show that the missingness does not significantly affect the means on the average environmental attitude scales (NEP and CNS) except for gender of spouse, occupation of spouse, and race of spouse. This also supports the assumption that the values are not missing at random in these variables. Because the data in the spousal categories are not missing at random, those variables were not included in further analysis. No other patterns of missingness were shown to significantly affect the analysis.

New Ecological Paradigm Scale

The NEP scale is the most widely used measure of environmental attitudes, having been used in hundreds of studies with many different populations (Dunlap & Van Liere, 1978; Dunlap, 2008). Given the complexity of scale design, using a scale that has undergone rigorous development and extensive validation testing confers immense benefits to a study such as this one (DeVellis, 1991). A slight revision to the scale was published in 2000 (Dunlap, Van Liere, Mertig, & Jones, 2000), updating the items and changing the name to New Ecological Paradigm (still NEP), which is also proving to be very popular among researchers studying environmental attitudes (Dunlap, 2008; Rideout, 2005; Rideout, Hushen, McGinty, Perkins, & Tate, 2005). Designed to measure the extent of public acceptance of a pro-ecological worldview, the revised scale consists of fifteen items, up from twelve in the original scale (Appendix 2).

The theoretical basis of analysis of responses to the scale rests on the value-basis model, proposed by Stern and Dietz (1994; Stern, Dietz, & Guagnano, 1995). This model proposes three categories of environmental values: egoistic (based on concern for self, also called egocentric), social-altruistic (based on concern for humans, also referred to as homocentric), and biospheric (based on concern for the intrinsic value of nature, also referred to as ecocentric). The New Environmental Paradigm scale is used to measure to which category of values the respondents subscribe.

In this study, the strength of the value-basis model as an underpinning for the NEP was tested by first placing the interview participants into the three categories of environmental values based on their responses and second, determining if this

categorization matched their score on the NEP. Although the sample of interviewees was small, it generally fit the value-basis model (Table 2). Those who were categorized as egocentric based on the interview scored in the low range of the NEP scale and those categorized as ecocentric scored in the higher range of the NEP scale. The category of homocentric did not follow the pattern, with interview participants in that category scoring throughout the range of the NEP. These results perhaps strengthen the argument of Hunter (1996) that few people fit into one category or another; rather there is a continuum.

Table 2: Test of value-basis model based on interview responses and New Ecological Paradigm scores

NEP Score	Perceived category of environmental attitude based on Interview	Theoretical category of environmental attitude based on value-basis model
1.87	homocentric	egocentric
2.00	egocentric	egocentric
2.10	egocentric	egocentric
2.53	homocentric	egocentric
2.87	egocentric	egocentric
2.93	egocentric	egocentric
3.67	ecocentric	homocentric
3.80	ecocentric	homocentric
3.93	ecocentric	homocentric
4.13	homocentric	ecocentric
4.13	ecocentric	ecocentric
4.23	ecocentric	ecocentric
4.33	ecocentric	ecocentric
4.33	eco/homocentric	ecocentric
4.33	homocentric	ecocentric
4.40	ecocentric	ecocentric
4.47	homocentric	ecocentric
4.60	ecocentric	ecocentric
4.73	homocentric	ecocentric
4.87	ecocentric	ecocentric

The New Ecological Paradigm scale has established criterion (known-group) validity (through the comparison of groups that may be expected to score higher or lower) (Dunlap & Van Liere, 1978; Grendstad, 1999). Edgell and Nowell (1989) find that fishers scored lower than environmentalists and the general public. Grendstad (1999) reports environmentalists scoring higher than the general public.

Throughout the literature, the NEP has reported a high degree of predictive validity¹ (significant relationships with behavioural intentions as well as self-reported and observed behaviours - alpha ranging from .71 to .88) and high internal consistency (Fransson & Garling, 1999; Kuhn & Jackson, 1989; Rideout, 2005; Tarrant & Cordell, 1997) but weaker consistency outside of North America (Bostrom, Barke, Turaga, & O'Connor, 2006; Corral-Verdugo & Armendariz, 2000). Some studies have suggested that this may be due to a more holistic view of the human-environment relationship in less industrialized societies (Van Petegem & Blieck, 2006). According to Grendstad (1999), "There has been a general consensus on the face (content) validity of the NEP scale ... with acceptable content, criterion and construct validity" (p. 194) (also see Dunlap & Jones, 2002). Dunlap et al. (2000) have compiled an in-depth review regarding the validity of the scale.

However, the scale has its critics. Lalonde and Jackson (2002) criticize some of the items in the original NEP scale for being simplistic and out dated. They conducted a mixed method study comprising an internet survey of list serve participants conversing on

¹ Predictive validity refers to the degree to which the scale can predict correlated scores of the same construct that are measured in the future (Gray, Williamson, Karp, & Dalphin, 2007). Internal validity refers to the ability of the scale to measure the construct for the sample of respondents (Gray, Williamson, Karp, & Dalphin, 2007).

the topics of environment and religion. People were asked to complete the NEP scale and then asked for comments on the items in the scale. Unfortunately, their study does not utilize the updated scale; however, some of the criticisms are applicable to the new scale as well. Most of the issues reported with the scale are around the wording of the items causing a lack of clarity around certain terms and the underlying ethical positions. Author of the scale Dunlap (2008) replies: "It is not surprising that, for example, a philosopher had problems with an item "that assumes humans and nature are distinct entities", nor that a biologist had problems with another item and asked "Are we talking about the physiological 'balance' of an individual organism, the ecological 'balance' of an ecosystem, or the 'balance' of fundamental laws of nature?" (p. 12). The defence to these criticisms, which are valid, is that the scale is not meant to be used in studies of people who are "highly educated and trained specialists in environmental issues" but rather taps into "folk" knowledge held by the general population (Dunlap, 2008, p. 12). Also, Lalonde and Jackson's sample has significant bias with 55% of respondents holding a graduate degree (Lalonde & Jackson, 2002), much higher than the U.S. average of 10%. An extensive ethnographic study by Kempton, Boster and Hartley (1995) concludes that the environmental perspectives of the general public, the 'cultural model', is particularly consistent with the major facets of the NEP, compelling confirmation of the scale's efficacy.

Lundmark (2007) also criticises the NEP scale for not capturing the nuances of an ecocentric stance, concluding that the scale measures anthropocentrism well but on the ecocentric side doesn't measure if someone is 'deep green'. She contends that the scale depicts an unsophisticated portrayal of humans as separated from nature and illustrates a

simplistic view of ecological dependency. This criticism may be less relevant for a North American study where the Dominant Social Paradigm may be more prevalent than in Europe. If the scale is less nuanced at the higher, 'deeper green' end, this may also be the reason that Lalonde and Jackson (2002) received complaints about the wording of the items, as the mean score for their sample was quite high (4.19 out of 5) (p. 31) and so these respondents may have had difficulty in finding satisfactory representations of their beliefs in the scale. Another criticism from Lundmark (2007) is that the scale items do not contain enough information to allow an in depth interpretation. Lundmark's suggestion to deal with this limitation is to follow up the scale with interviews to reach a deeper understanding. These criticisms reveal that improvements to instruments such as the NEP can always be made, a project that is beyond the scope of this study.

Connectedness to Nature Scale

NEP is generally seen to measure core attitudes and foundational worldviews about how we think in general about the environment (Dunlap, 2008; Stern, Dietz, & Guagnano, 1995) and about the relationship between humans and nature, rather than self and nature (Schultz et al., 2005). Mayer and Frantz (2004) argue that the NEP scale is somewhat restricted to cognitive aspects and may miss out on the more emotional, affective, experiential and personal connection to nature. They developed the Connectedness to Nature Scale (CNS) (Appendix 3), designed to focus on the affective component of an individual's relationship with nature. The authors also suggest that this scale could be used to test if there is a correlation between time spent indoors and an individual's connectedness to nature (Mayer & Frantz, 2004, p. 505).

Multiple studies on the formation of ecological identity discuss how connectedness to nature is an important affective result of environmental education and exposure to the outdoors as a child (Eigner, 2001; Orr, 1994; Wells, 2000). Leopold (1966) writes that when we feel that we belong to the land, we may begin to love and respect it, a sentiment that leads one to believe the emotional component of environmental attitudes may be just as important as the cognitive. It may be important to be able to measure the extent to which children feel connected to nature as we explore how to increase these feelings in our society.

Mayer and Frantz (2004) base their scale on a review of the psychological theory regarding the links between feeling a relationship-type bond and feeling empathy, leading to a feeling of willingness to help. They write, “Expanding one’s sense of self does lead to more empathic and altruistic behaviour” (p. 504). This more emotive aspect of our relationship with nature is somewhat different than the environmental attitudes measured using the NEP and NEP-modified scales.

Perrin and Benassi (2009) challenge whether the CNS truly measures emotions, contending that the use of verbs such as think and recognize in the scale result in a cognitive measure, although their study did not find a difference in participants' response to items that used the verb feel. Despite a possible cognitive bent to the scale, Perrin and Benassi (2009) still conclude that the scale “taps a connectedness to nature dimension” (p. 439).

Five studies have been conducted (all in the United States) in order to demonstrate the “internal consistency, unidimensionality, test-retest reliability and convergent validity” of the CNS scale (Mayer & Frantz, 2004, p. 505). In the first study, the goal

was to establish internal coherence and also convergent and discriminant validity (Mayer & Frantz, 2004). The CNS and the NEP scale are administered to sixty people approached randomly in public places, along with a lifestyle index which measured the amount of contact participants had with nature. Regarding the CNS, internal reliability is found to be high, $\alpha = 0.84$, and it confirms the scale has only one factor. Correlation between NEP and the CNS is high ($r = 0.52$, $p < 0.001$). Both NEP and CNS correlated to the lifestyle index; however, Mayer and Frantz report (2004) “the correlations between lifestyle and CNS remained significant when controlling for NEP, while the correlations between the NEP and lifestyle were not significant when controlling for CNS” (p. 507). They interpret this result to mean that NEP and CNS are measuring different things.

In the second study, introductory psychology students participated in a test-retest of the CNS scale, with the study confirming again the one factor solution and also a high reliability ($\alpha = 0.82$). Again, the students are also asked to complete the NEP scale and a subset asked to self-report regarding environmental behaviours. Mayer and Franz (2004) report that “when controlling for NEP scores, the CNS and ecological behaviour correlate positively with each other. In contrast, the relationship between ecological behaviour and NEP disappears when controlling for CNS” (p. 508). This finding is interpreted to provide support for the idea that feeling connected to nature, and not just our more cognitive beliefs and attitudes, shape how we treat the environment (Mayer & Frantz, 2004). However, given the high correlation between the NEP and behaviour in previous studies, this result could simply be sample specific.

The third study consists of a known-group comparison, with results supporting the hypothesis that environmental studies students would score higher on the CNS than

students in other majors (Mayer & Frantz, 2004). In study four, the researchers test whether a high score on CNS correlates with life satisfaction and also how it correlates with different environmental attitudes. Mayer and Frantz (2004) ask members of the community to complete the CNS, the NEP scale, a life satisfaction scale and a general value scale measuring environmental attitude orientation (biospheric, altruistic and egoistic) (also see Schultz et al., 2005). Mayer and Frantz (2004) report: “CNS was positively associated with the general biospheric value orientation, but not with the more human-centric altruistic and egoistic value orientations. The NEP was also correlated with biospheric value orientation. The CNS and NEP diverged, however, in that the NEP exhibited a negative relationship with the general egoistic value orientation while the CNS did not” (p. 510). Also the study found that the CNS was positively correlated with life satisfaction and well-being, while the NEP was not. This is interpreted to confirm other studies (Eigner, 2001) that showed people who are connected to nature also feel more satisfied with life.

In study five, Mayer and Frantz (2004) compare the CNS to Schultz’s inclusion item (as described below) (Schultz et al., 2005), finding a moderate correlation; however, the study has a very small sample size.

Looking across all five studies, the CNS can be seen to be reliable and valid, consistently loading on one factor and having high internal consistency (Mayer & Frantz, 2004). Paired with the NEP, researchers are able to obtain a good picture of a respondent’s cognitive and affective relationship to nature.

Other tools to measure the interconnectedness of nature and self appear to be limited. Schultz et al. (2005) use overlapping circles as a measure, as part of their theory

of inclusion. Respondents are presented with a picture of overlapping circles labelled as self and nature and asked to choose the level of overlapping that best describes their relationship with the environment. Compared to a more straightforward scale such as CNS, the inclusion model is rather complex and abstract; therefore, it may need refinement.

Reliability Analysis

The biggest disagreement in the literature regarding the New Ecological Paradigm scale surrounds its dimensionality (Cordano, Welcomer, & Scherer, 2003; Dunlap, Van Liere, Mertig, & Jones, 2000; Grendstad, 1999; Lalonde & Jackson, 2002). The original scale was thought to be uni-dimensional (Dunlap & Van Liere, 1978); however, the majority of studies using factor analysis on the scale items report three distinct dimensions emerged: balance of nature, limits to growth, and human domination of nature. Other studies have ranged from finding one dimension (Edgell & Nowell, 1989) to finding five dimensions, with some discrepancies in the factor loadings of individual items (Dunlap, Van Liere, Mertig, & Jones, 2000; Noe & Snow, 1990). Dunlap et al. (2000) suggest that the dimensions are often sample-specific and the decision as to how to analyze the data should depend on the study results.

The updated NEP scale, having additional questions, is considered to have five dimensions (Dunlap, Van Liere, Mertig, & Jones, 2000). Two are the same as the original scale: balance of nature (items 3, 8, and 13) and limits to growth (items 1, 6, and 11). The human domination of nature dimension now has been separated into two: anti-anthropocentrism (items 2, 7, and 12) and the interconnectedness of humans and nature

(items 4, 9, and 14). A fifth dimension is the possibility of an ecocrisis (items 5, 10, and 15).

For the current study, to assess the internal reliability of the NEP scale Cronbach's alpha was computed. The alpha for the 15 items was 0.861, which indicates reasonable internal consistency reliability. This alpha is comparable to other Canadian studies using the scale (Table 3). (Table 3 also demonstrates that the mean NEP score in this sample is in a comparable range with other studies of Canadian samples.)

Table 3: Canadian Studies using the New Environmental/Ecological Paradigm Scale

Study	Sample	Location	Size (n)	% male	Mean Age	No. Scale Items	Mean NEP Score*	SD	Alpha
Blake et al (1997)	Representative	British Columbia	1954	-	-	10	3.93	-	-
Davey and Vertrees (1999)	White collar	Hamilton, ON	40	85	57	12	4.06	-	-
McFarlane, Stumph-Allen, Watson (2006)	Other	Columbia Valley, AB	484	-	51	15	3.71	.64	.83
	Other	Bow Valley, AB	435	-	46	15	3.87	.60	.83
	Representative	Calgary, AB	457	-	45	15	3.67	.60	.83
Deng, Walker and Swinnerton (2006)	Representative	Edmonton, AB	160	55	-	15	3.81	.52	-
Schultz and Zelezny (1999)	Students	-	96	28	23	15	4.11	.40	.74
Steger, Pierce, Steel and Lovrich (1989)	Representative	Ontario	588	71	39	6	4.04	-	-
	Environmentalists	Ontario	447	79	48	6	4.04	-	-
Edgell and Nowell (1989)	Representative	British Columbia	306	-	-	12	4.13	-	.82
	Environmentalists	British Columbia	64	-	-	12	4.63	-	.80
	Fishers	British Columbia	190	-	-	12	2.63	-	.87
Current Study	Other	Canada-wide	713	11	-	15	3.54	.76	.86
*mean NEP scores are standardized to a 5 point scale (from Hawcroft & Milfont (2010))									
Representative = representative sample of general community									

In the current study, corrected item-total correlations for each item are reasonably strong, ranging from a low of 0.335 to a high of 0.719. The two exceptions were items 4 (Human ingenuity will ensure that we do not make the earth unliveable) and 14 (Humans

will eventually learn enough about how nature works to be able to control it), both of which were below 0.2; however, deletion of those two items did not improve alpha.

To add to the knowledge base on the dimensionality of the NEP scale, principal components analysis (PCA) was conducted. Missing values were excluded listwise ($n = 660$). The Kaiser-Myer-Olkin measure verified the sampling adequacy for the analysis, $KMO = 0.899$. Barlett's test of sphericity $\chi^2_{(105)} = 3411.628$, $p < 0.001$, indicated that correlations between items were sufficiently large for PCA. All 15 items loaded on the first unrotated factor with loadings in the range of 0.171 to 0.819. This first unrotated factor explained 36% of the variance. These results are comparable to analysis done by Grendstad (1999), who concluded that they show a moderately strong ecological factor running across all of the items.

PCA was conducted again with orthogonal rotation (varimax) on the 15 NEP items. Three factors had eigenvalues over Kaiser's criterion of 1 and in combination explained 54.15% of the variance. Table 4 shows factor loadings after rotation, with loadings less than 0.30 omitted to improve clarity.

Table 4: Principal Components Analysis of New Ecological Paradigm Scale Items with Varimax Rotation

	Factor		
	1	2	3
NEP_1_We are approaching the limit of the number of people that the earth can support	0.796		
NEP_12_Humans were meant to rule over the rest of nature	0.772		
NEP_10_The so-called "ecological crisis" facing humankind has been greatly exaggerated	0.740	0.334	

NEP_11_The earth is like a spaceship with very limited room and resources	0.740		
NEP_7_Plants and animals have as much right as humans to exist	0.605	0.387	
NEP_6_The earth has plenty of natural resources if we just learn how to develop them	0.591		0.344
NEP_15_If things continue on their present course, we will soon experience a major ecological catastrophe	0.585	0.547	
NEP_2_Humans have the right to modify the natural environment to suit their needs	0.385		
NEP_3_When humans interfere with nature it often produces disastrous consequence		0.724	
NEP_5_Humans are severely abusing the environment		0.717	
NEP_13_The balance of nature is very delicate and easily upset	0.337	0.540	
NEP_9_Despite our special abilities, humans are still subject to the laws of nature		0.531	
NEP_4_Human ingenuity will ensure that we do not make the earth unlivable			0.796
NEP_14_Humans will eventually learn enough about how nature works to be able to control it			0.725
NEP_8_The balance of nature is strong enough to cope with the impacts of modern industrial nations	0.432	0.336	0.487
Eigenvalue	5.411	1.552	1.159
Percentage of Variance	36.07	10.35	7.73
Loadings less than 0.30 omitted. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 5 iterations. $n = 660$.			

As shown in Table 4, when the three factors with eigenvalues greater than one are subjected to varimax rotation, seven items load most heavily on the first factor: all three of the limits to growth items (1, 6, 11) and all three of the anti-anthropocentrism items (2,

7, 12) and two of the eco-crisis items (10, 15). Item 8 (a balance of nature item) also cross-loads heavily on the first factor. The anti-exemptionalist items did not load on the first factor. The four items loading on the second factor include two from the balance of nature dimension (3, 13) and one each from anti-exemptionalist (9) and eco-crisis (5). Item 15 from the eco-crisis dimension also cross-loaded on this second factor. Two items from the anti-exemptionalist dimension load on the third factor (4, 14) as well as one from balance of nature (8). The latter two factors have fairly low eigenvalues.

These results contradict the hypothesis that the NEP scale contains five consistent dimensions and support the contention that dimensions are often sample specific (Dunlap, Van Liere, Mertig, & Jones, 2000; Grendstad, 1999). Given the high alpha of 0.861, it is reasonable to treat the scale as a single dimension. The eigenvalues of the factor analysis also suggest a one factor solution is best. There is some consistency with the suggested dimensions in other studies but little overlap in terms of the factor structure. A forced five factor solution did not improve the results.

Internal reliability of the Connectedness to Nature Scale (CNS) was also computed, with Cronbach's alpha equal to 0.898. Corrected item-total correlations for each item were reasonably strong, ranging from a low of 0.323 to a high of 0.825. The two exceptions were items 4 (I often feel disconnected from nature) (0.106) and 14 (My personal welfare is independent of the welfare of the natural world) (0.119); if deleted, the value of alpha rose to 0.907 or 0.911 respectively.

The 14 items of the CNS scale were also subjected to principal components analysis (PCA) with orthogonal rotation (varimax) (Table 5). Missing values were excluded listwise ($n = 668$). The Kaiser-Myer-Olkin measure verified the sampling

adequacy for the analysis, KMO=0.936. Barlett's test of sphericity $\chi^2_{(91)} = 5317.147$, $p < 0.001$, indicated that correlations between items were sufficiently large for PCA. An initial analysis was run to obtain eigenvalues for each component in the data. Three components had eigenvalues over Kaiser's criterion of 1: first factor 6.745, second 1.428 and third 1.051. The first factor explained 48% of the variance and in combination the three factors explained 66% of the variance. All items loaded on the first factor positively, from 0.076 to 0.87, average factor loading of 0.64. These results are consistent with Mayer and Frantz (2004) who found their first factor explained 38% of the variance with an eigenvalue of 5.29 and factor loadings in the range of 0.28 to 0.83 with an average factor loading of 0.61. A one factor solution is determined to be best for these results, especially when paired with the alpha value of 0.898.

Table 5: Principal Components Analysis of Connectedness to Nature Scale Items with Varimax Rotations

	Factor		
	1	2	3
CNS6_I often feel a kinship with animals and plants	.873		
CNS11_Like a tree can be part of a forest, I feel embedded within the broader natural world	.873		
CNS9_I often feel part of the web of life	.860		
CNS7_I feel as though I belong to the Earth as equally as it belongs to me	.843		
CNS5_When I think of my life, I imagine myself to be part of a larger cyclical process of living	.806		
CNS2_I think of the natural world as a community to which I belong	.806		
CNS10_I feel that all inhabitants of Earth, human, and nonhuman, share a common 'life force	.751		
CNS1_I often feel a sense of oneness with the natural world around me	.750		
CNS13_I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees	.695		
CNS3_I recognize and appreciate the intelligence of other living organisms	.680		
CNS4_I often feel disconnected from nature		.657	
CNS12_When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature	.439		
CNS8_I have a deep understanding of how my actions affect the natural world	.396	.542	
CNS14_My personal welfare is independent of the welfare of the natural world			.924
Eigenvalue	6.745	1.428	1.051
Percentage of Variance	48	10	8
Loadings less than 0.30 omitted. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 4 iterations. n = 668.			

When the NEP and CNS were assessed in conjunction, Cronbach's alpha rose to 0.925. Score on NEP was significantly correlated with score on CNS, $r = 0.668$, $p < 0.001$ (two-tailed). These results suggested the two scales could be used together with reasonable reliability. In developing the CNS, Mayer and Frantz (2004) agreed that it was conceptually related to the NEP, but their study found that there were different correlates associated with higher scores on the two scales. In their research, they found that both NEP and CNS correlated significantly with lifestyle indices and measures of ecological behaviour but when the effects of one scale were partialled out, only CNS remained significant. They interpreted these results as evidence that the two scales were measuring something different. The current study did not include behavioural or lifestyle variables so their results were not able to be replicated. A number of partial correlations were conducted with different variables and the correlation between CNS and NEP score remained consistently high ($r > 0.6$, $p < .001$). Partial correlations controlling for CNS or for NEP showed that both related significantly to importance of religion, homeschooling or public schooling, structure of homeschooling and educational philosophy. However, when mean CNS score was controlled for, mean NEP score was no longer significantly correlated with the primary motivation for homeschooling, even though CNS and primary motivation were still significantly correlated when controlling for NEP. Perhaps this is some evidence for a more affective based measure in both of these variables (CNS and motivations for homeschooling). More research is obviously needed in order to further distinguish between the two scales.

Qualitative methods

The quantitative data collected was supplemented using qualitative techniques to better discern the factors that can influence environmental attitudes. The qualitative portion of the study was linked to but not dependent on the quantitative data. The goal of the qualitative data was to add greater depth to the findings and explore the complexity of the research questions.

Interviews

Semi-structured interviews were conducted in an informal and conversational style, using questions as a guideline but following up with prompts and probing. Common interview practices were followed, such as recognizing inhibitors, structuring the interview, avoiding leading questions and probing (Seidman, 1998). The goal of the interviews was to provide an overview of the respondents' environmental attitudes and to explore some of the significant life experiences that may have influenced these attitudes.

At the end of the quantitative survey, respondents were asked if they would be willing to participate in an interview and asked to provide their contact information. From the volunteers, a sample was drawn according to the sampling technique described below. Respondents were contacted via email and asked to schedule an appropriate time for the interview, following the literature which suggests that interviews are more successful when the respondent is in charge of choosing the scheduled time (Genovese, 2004).

Interviews were approximately twenty-five minutes in length and conducted by telephone. Questions included asking for a description of the respondent's attitudes toward the environment and asking for reflection as to what life experiences may have influenced those attitudes (see Appendix 5 for Interview Guide). The wording of the questions was loosely drawn from two studies, Kempton, Boster, and Hartley (1995) and Peterson (1982) (also used in Sward (1999)). By utilizing questions that have already been tested in other studies, validity is strengthened and consistency across studies is increased. Various probes were used in a conversational style and varied depending on the participant's responses. The questions address the theoretical constructs integral to the research questions and probes ensured that the variables hypothesized to have an impact on the research question were discussed (such as religion, time outdoors, structure of curriculum).

Telephone interviews can have both negative and positive characteristics. Kirsch and Brandt (2002) write that "research findings over the past two decades indicate that there are few consistent differences in data quality between in -person interviews and telephone interviews" (p. 78). Indeed, in their own study of families dealing with cancer, they find that "the telephone interviews surpassed expectations in eliciting in-depth information" (p. 81). However, it must be acknowledged that a lot of the literature on telephone interviewing comes from the fields of marketing and polling, rather than phenomenological qualitative research. Taylor (2002) describes the varying experience of a telephone survey as compared to a 'real' telephone interview. The many problems involved with telemarketing over the phone, such as rudeness, refusal to participate, suspicion and hostility, tend not to occur in a pre-scheduled in-depth interview (Taylor,

2002). The person is expecting the call, has had a say in when it is scheduled, is interested in the topic, does not have to answer an interminable list of closed questions, and is able to speak freely in response to open questions. Taylor (2002) points out, “in the open or semi-structured interview, the researcher conducting his or her own interviews, unlike the employed telephone pollster, has much investment in making that conversation work” (p. 23). That concept of ‘conversation’ is fundamental to the successful in-depth telephone interview. As Genovese (2004) writes, “Nothing is more seductive than a person’s belief that their opinion matters” (p. 222). The researcher is presenting the interviewee with “an opportunity to engage in a sociality” and a shared social experience (Taylor, 2002, p. 23). It may be this sociality that allows the technology of the telephone to be successful in a qualitative interview. This success depends on the skill of the interviewer in ensuring the comfort of the interviewee, as well as consistent and clear communication (Genovese, 2004).

Benefits of telephone interviews are that they are low cost, logistically easy to organize, do not require travel (which also reduces the carbon footprint of the study), can reach people spread over a wide geographic area, and can be scheduled at the convenience of the interviewee. They also provide strengthened anonymity that may lead to more personal information being shared (Kirsch & Brandt, 2002) and promote reflection and relaxed responses (Taylor, 2002). The downside of telephone interviews includes the risks of technological failure, dependence on verbal communication, loss of access to non-verbal cues and nuances, a necessity to keep them shorter than in-person interviews, and a possible lack of focus on behalf of the interviewee. A possible problem with telephone interviews is a lack of detail in the discussion; however, this can be

overcome by keeping the number of questions small so there is time to explore ideas on a deeper level (Garbett & McCormack, 2000). Also, other researchers have noted the human voice has an immense ability to communicate in a nuanced fashion so that even without the benefit of seeing the person face-to face, a great deal can be communicated (Cook, 2009; Genovese, 2004; Taylor, 2002).

It is important to remember that in any interviewing situation, “respondents are sifting through a range of stories that they might tell” (Cook, 2009, p. 180) and so the information that is transmitted through this one verbal encounter will always be incomplete. However, interviews are recognized as an appropriate and useful tool to interrogate a worldview, with the underlying assumption that “words are an adequate way to access and interpret the world” (Cook, 2009, p.176). All interviews, including those on the telephone, are a “contrived rather than a truly naturalistic social interaction,” but can provide robust data, particularly when combined with other methods (Taylor, 2002, p. 30). The researcher must remain conscious of this situation during the data analysis, attending to the surface of the words but also looking between the lines and being aware of the multiplicity of possible interpretations and meanings inherent in interview data (Sandelowski, 2002).

Interview Sampling

Interviewees were chosen from the survey respondents who had completed the entire survey, indicated a willingness to participate, and provided contact information. Any volunteers with a possible relationship to the researcher were excluded from the

sampling. At the time of the interview sampling, 199 people had volunteered to be interviewed, almost 40% of the total completed surveys.

Upon examination, it was discovered that more than 70% of volunteers were homeschooling parents. To choose a smaller number of interviewees from within the homeschooling parents, the technique of non-representative stratified sampling based on independent variables was utilized (Trost, 1986). This technique was paired with the idea of criterion sampling, where the preceding quantitative data framed the sampling strategy in order to elaborate on and clarify the quantitative results (Sandelowski, 2000a).

“Criterion sampling is a kind of purposeful sampling of cases on preconceived criteria, such as scores on an instrument” (Sandelowski, 2000a, p. 248). The criteria used were average environmental attitude score, importance of religion, and amount of unstructured time their children spent outside (Table 6). The technique results in interview cases representing a combination of major variables. In this manner, the interviews reach respondents that vary in key ways relevant to the research question. Unfortunately, for some combinations of variables, there were no volunteers fitting the criteria. In total, 26 homeschooling parents were contacted, with 14 agreeing to be interviewed.

Table 6: Homeschooling Parents Selected for Interviews Based on Criteria of Environmental Attitude, Importance of Religion and Amount of Unstructured Time Their Children Spent Outdoors

Ecocentric Environmental Attitude*				Egocentric Environmental Attitude**			
Religion Strongly Important		Religion Not at all Important		Religion Strongly Important		Religion Not at all Important	
Unstructured time outside less than one hour/day	Unstructured time outside more than 3 hours/day	Unstructured time outside less than one hour/day	Unstructured time outside more than 3 hours/day	Unstructured time outside less than one hour/day	Unstructured time outside more than 3 hours/day	Unstructured time outside less than one hour/day	Unstructured time outside more than 3 hours/day
2 interviews	3 interviews	0 interviews	4 interviews	3 interviews	1 interview	0 interviews	1 interview
*Ecocentric environmental attitude determined by mean environmental attitude score of >4 on combined measure of NEP and CNS							
** Egocentric environmental attitude determined by mean environmental attitude score of <= 2.5 on combined measure of NEP and CNS							

This stratified sampling technique resulted in a sample that was not statistically representative, but rather “informationally representative” (Sandelowski, 2000a, p. 250). The technique targets “information rich cases” that will shed light on the particular aspects of the research question of greatest interest (Sandelowski, 1995b). The caution with this technique is that the variables should be chosen because they are of analytic importance rather than simply choosing demographic variables (e.g. gender, class) which may be politically appropriate but not analytically important to the particular study (Sandelowski, 1995a). Key features of qualitative samples are fulfilled, including being based not on statistical probability but on purposive criteria, small and studied intensely, conceptually driven, and designed to make analytic generalizations "applied to wider theory on the basis of how selected cases 'fit' with general constructs" (Curtis, Gesler, Smith, & Washburn, 2000, p. 1002).

Due to the much smaller numbers who volunteered for an interview in the other categories of respondent, it was decided to contact all of them. Nine public school youth were contacted, with three agreeing to an interview. Seven homeschooling youth were contacted, with one agreeing to an interview. Ten public school parents were contacted, with two agreeing to be interviewed. The interviewees were then able to be fit into the same sampling framework as the homeschooling parents. The three public schooled youth and one homeschooled youth that were interviewed had ecocentric environmental attitudes (scored greater than 4 on the scales), reported religion to be not at all important and spent more than three hours in unstructured outdoor play each day. The two public school parents that were interviewed had an egocentric environmental attitude (scored less than 2.5), reported religion to be not at all important and their children spent more than three hours in unstructured outdoor play each day.

With 14 homeschooling parents and 6 people from other categories agreeing to be interviewed, the total sample was twenty interviews, considered a reasonable size for a qualitative study (Sandelowski, 1995b). According to Sandelowski (1995b), "An adequate sample size in qualitative research is one that permits--by virtue of not being too large--the deep, case-oriented analysis that is hallmark of all qualitative inquiry, and that results in--by virtue of not being too small--a new and richly textured understanding of experience" (p. 183).

Demographics of Interview Participants

Of the twenty people interviewed, all were white except for one unspecified. Eighteen were female and two were male. Twelve were from urban areas, five from

suburban areas, and three from rural areas. Ten were from Ontario, five from Alberta, three from Nova Scotia and one each from British Columbia and Quebec. Most (eight) were between 45-54 years old. Four were in the 35-44 age bracket, four in the 26-34 age bracket, three in the 18-25 age range and one unspecified. Half of the interviewees were in the middle-income bracket, two in the upper-middle, two in the upper class, one in the lower-middle, and five unspecified. Six identified themselves as atheists, one as agnostic, five as Protestant Christians, two as Evangelicals, two as Catholics and three unspecified.

Interview Data Analysis

Interviews were digitally recorded and then transcribed. Analysis was aided by the software package Atlas.ti Version 6.2.15. The coding words were data driven (Gibbs, 2007), in an inductive process, as outlined by Seidman (1998). Once open coding was complete, comparative analysis was conducted, using both the interview data and the quantitative survey data. The goal of this analysis was mainly descriptive, following Sandelowski (2000b), identifying patterns in the data and summarizing them in such a way as to be reflective of the research question and to be useful and relevant to the audience of the study. Finally, the significant life experience literature was reviewed to determine if the results of this analysis were consistent with previous studies (Chawla, 1998; Peterson, 1982; Sward, 1999; Tanner, 1980, 1998).

Limitations of the Study

In all methods employed by researchers, sources of bias or error may influence the findings of a study. This study attempted to eliminate bias where possible through strong

research design (including multiplicity of method), and offers explicit acknowledgement of the remaining bias in this section.

Quantitative

The quantitative aspect of this research design provides an important big-picture look at possible correlations between variables. However, it is important to note that correlation does not imply causality. Any significant findings will need to be accepted within the interpretive bounds of mathematical statistics, as suggestive and interesting but not positing a hard link in terms of causality.

Social desirability bias (or modeling effect), when respondents will not answer questions honestly because they know they are being measured and evaluated (Gray, Williamson, Karp, & Dalphin, 2007), is a common challenge in measuring environmental attitudes. In responding to the survey questions, respondents may give answers they feel are socially acceptable rather than answering in accordance with their actual attitudes. However, the self-administration of the questionnaire will reduce this risk, as conducting a survey through computers provides a feeling of neutrality and anonymity (Nederhof, 1985).

Another possibility of bias is in the composition of study participants, as it is based solely on volunteers who were willing to click on the link in the email to take the survey. Respondents having stronger environmental attitudes may be predisposed to participating in a study of such attitudes. Those respondents who did not volunteer to participate in the study may well be those who would be less interested in the subject matter of the research, creating a bias in favour of respondents more likely to give

favourable responses. These biases are part of a convenience sample, based on volunteers (Fink & Kosecoff, 1998). This type of sample may also be biased toward getting answers from those who are braggers or complainers (Fink & Kosecoff, 1998). The solution of random sampling is not possible for this research design. However, because what is of interest is the relative differences in environmental attitudes between homeschooling and public schooling families, and not the absolute values, the importance of this bias is reduced (Etter & Perneger, 2000). Providing incentives for participating will also partially reduce this source of bias.

All of these sources of bias must be kept in mind when attempting to draw conclusions from the quantitative data collected. Without a representative sample, it is not possible to generalize results to the wider population.

Qualitative

To minimize the risk of social desirability bias during interviews, comments and probing questions were done in as neutral a manner as possible (Stewart, Shamdasani, & Rook, 2007). There is also a related risk that in asking respondents about their environmental attitudes during the interviews, the attitudes become exaggerated. This is linked to experimenter expectancy effects, which refers to the various ways the researcher can bias subjects to perform in a way consistent with his or her hypothesis. The subject may have perceptions of the researcher's goals, which may cause this bias to appear (Leeming, Dwyer, Porter, & Cobern, 1993). Participants were reassured that their responses were confidential (and in the case of the interviews, anonymous), encouraged to be honest in their statements and reassured that there were no wrong answers.

The interview participants were chosen partially based on their score on the questionnaire, which reduces some of the bias inherent in a convenience sample. The risks of relying on volunteers for interviews are similar to those of doing surveys in the same manner. In soliciting participants for the interviews, people who have more interest in the topic of the research are more likely to volunteer. As well, people who are more outgoing and socially confident are also more likely to volunteer for an interview. Because the goal is not to generalize to the wider population, but to understand more deeply the phenomenon, this bias is of low risk.

As in most research projects, there are many confounding factors which cannot be controlled for, such as previous experiences of the subject, mood of subject during participation, the short term of the study period, and things happening to the subject outside of the study (Berg & Latin, 1994). In addition, simply talking about their attitudes during the interview could cause an inflation of the attitude in question, causing it to seem more important than perhaps it would be in everyday life. These factors could all have an impact on the results of the study; however, the risk of these biases significantly influencing the results is low.

Conclusion

The research design was formulated to optimize the conclusions from both qualitative and quantitative methods within a pragmatic framework. The combination of two environmental attitude scales along with demographic questions provides a rich source of data, supplemented by interviews with a subset of respondents. Internet surveys utilizing the snowball and river sampling techniques resulted in a large and high quality

data set. An interesting group of interviewees was chosen by implementing a non-representative stratified sampling technique based on independent variables. The limitations in this study are shared by most research projects of this design and are not expected to unduly influence the conclusions.

Chapter 3: Demographics

Along with environmental attitude questions, survey participants were asked a series of demographic questions. These results painted a picture of the types of people homeschooling in Canada and allowed for comparison with public schooling families. Throughout this chapter, results were compared to other Canadian studies on homeschooling, further illuminating who is homeschooling in this country. This chapter concludes with an examination of whether the demographic variables interacted in a meaningful way with the scores on the environmental attitude scales. No discernable patterns were found, with the exception of religion which will be discussed in Chapter 6.

Study Design

To increase reliability, validity and comparability, demographic questions were patterned after other Canadian studies (see Appendix 4) (Ray, 1994; Van Galen, 1988). Only relevant questions were presented to the respondent based on their initial responses; for example, only those involved with homeschooling were asked questions that pertain to that educational system. All participants were asked about their and their spouse's age, gender, education, occupation, racial background, income, where they live, religious views and educational philosophy. Demographic data were compared with data from other studies to determine if there were any differences among the samples of Canadian homeschoolers.

The original design of this study had hoped to compare children and their parents in both homeschooling and public schooling families, leading to four categories of recruitment. Unfortunately, recruitment of children proved impractical and while the survey went forward with the four categories, only respondents over the age of 18 were asked to respond. Only about 10% of respondents could be classified as youth, and so this chapter begins with an analysis of whether this category could be folded into the general sample.

Results of Sorting Categories

Of the 713 valid responses, 480 (67%) were from a parent who was currently or had been previously homeschooling a child; 43 (6%) were from a person who was being or had been homeschooled; 162 (23%) were from a parent who had a child in public school; 28 (4%) were from a person between the ages of 18 and 25 who had attended public school. A mean environmental attitude score was calculated, composed of the combined mean of the NEP and CNS scores. A univariate analysis of variance showed that the assumption of homogeneity of variance was violated; therefore, the Brown-Forsythe F-ratio is reported. There was a significant effect of the category on mean environmental attitude score, $F_{(3, 140)} = 11.79$, $p < 0.001$. Post-hoc tests (Games-Howell to account for differences in sample size and equal variances not assumed) showed that the homeschooling parents and youth did not differ significantly from each other but did significantly differ from public school parents and youth and vice versa (Table 7). Therefore, it was decided to fold in the youth with the parents to form two new

categories: homeschoolers and public schoolers, which will be used in the remainder of the analysis.

Table 7: Mean (standard deviation) environmental attitude score for each category of survey respondent

Category	Mean Environmental Attitude Score*	<i>n</i>
a parent who is or has been homeschooling a child	3.50 (0.773) ^a	480
a person who is being or has been homeschooled	3.31 (0.828) ^a	43
a parent who has or has had a child in public school	3.80 (0.564) ^b	162
a person between the ages of 18 and 25 who has attended public school	3.89 (0.572) ^b	28
Total	3.57 (0.742)	713
*Significant (at the 0.05 level) differences between categories are expressed with a superscript letter, based on Games-Howell post-hoc multiple comparisons.		

The Demographics of Homeschooling

More research is needed regarding Canadian homeschoolers and how they compare to families in the public school system. The demographics of homeschooling in Canada have been measured in three major nation-wide studies. Priesnitz (1990) collected surveys from 107 homeschooling families on behalf of the Canadian Alliance of Home Schoolers; Ray (2004) of the US-based National Home Education Research Institute collected data from 808 families and 2594 students; and Van Pelt (2003) collected surveys from 1648 families on behalf of the Canadian Centre for Home Education. These studies were used as a basis for comparison for the current sample.

Most estimates put the number of homeschoolers in the United States in the late 1970s at around 13 000, a number which surged to 2.1 million in 2003 (Ray, 2004).

Statistics Canada estimated the number of children being homeschooled in Canada to be 17 500 in the 1995-96 school year (Luffman, 1997); however, the true number is thought to be almost double that, given that many homeschooling families do not register with school boards or provincial governments, despite some provinces' requirements to do so (Arai, 2000). The growth rate in homeschooling continues to be around 7 to 15 percent annually (Carper & Hunt, 2007). Luffman (1997) attributes this growth to "increased receptivity of the general public and the adoption of more flexible legislation" (p. 39). More current figures on the number of Canadian homeschoolers are anecdotal at best as Statistics Canada does not gather this information.

Based on US studies, Ray (2004) paints a picture of homeschoolers as having the following characteristics: larger than average families; equal number of male and female students; headed by married couples; in about half the families, the parent has some higher education; income levels are close to median; the majority are Christian. Isenberg (2007) contests that only a minority of about 30% of homeschoolers are motivated by religious reasons. Studies show that while 90% of homeschoolers are white, more minority groups are starting to participate. In the United States, the median income for homeschoolers is the same as the rest of the country (Pink, 2001). This may be partly explained by Isenberg's (2007) conclusion that families with a higher income level are more likely to choose private schools as an educational alternative. The data suggests that homeschooling families are not terribly out of the ordinary but it is true that the family must have a high enough income level for one parent to stay home (Lubienski, 2000).

Demographic Survey Results and Discussion

For many of the demographic variables, the data for homeschoolers and public schoolers were very similar (Table 9). Most surveys from both home and public schoolers were answered by people in the age ranges between 26 and 54 (in total, 20.3% between the ages of 26-34, 42.9% between the ages of 35-44 and 24.2% in the range of 45-54). Fewer were below the age of 25 (7.5% in total, 5.2% of homeschoolers, 13.8% of public schoolers) or above the age of 54 (5.1% in total, 3.4% of homeschoolers, 9.6% of public schoolers). The sample was mostly female (89%), Anglophone (88%), and White (91%). Slightly more homeschoolers were male (12.6%) than public schoolers (7.5%). These numbers are comparable to Van Pelt's (2003) study, where 96% of the surveys were completed by the mother. In the current sample, within homeschoolers, 91.3% were White, while the other most popular choices were Other (2.9%) and Oriental (1.4%). This homogeneity in the sample is similar to Ray (1994), whose sample of Canadian homeschoolers was 94% White, and Van Pelt at 84% White. Although the literature suggests that more minorities are beginning to homeschool, this trend was not reflected in this sample.

Half of the sample identified as homemaker/home educator (51.4%), with professional/technical the second most popular occupation (19.5%). Just over 60% of homeschoolers reported their occupation to be home educator, compared to less than 20% of public schoolers. The more popular category for public schoolers was professional (32%), which was only chosen by 15% of homeschooling respondents. However, this is not surprising since it appears it was mostly the mother who was answering the survey,

consistent with literature that suggests most homeschooling is done by the mother (Kunzman, 2009; Ray, 1994; Van Pelt, 2003).

Half of the sample had either a college diploma (23%) or a Bachelor's degree (35%), with 13% having a graduate degree and 8% having education at the high school level. In the current sample, 73% of public schoolers and 71% of homeschoolers had a higher education degree. This is similar to Priesnitz's (1990) sample with 66% of homeschooling parents having a college degree. A comparison was made with Van Pelt (2003) as to the education level of homeschooling males and females with very similar trends in her sample and the current study's sample; both samples were well-educated (Table 8).

Table 8: Homeschooling Parent's Highest Level of Education, Current Sample compared to Van Pelt (2003)

Education Level	Females		Males	
	Current Sample (<i>n</i> = 466) %	Van Pelt (2003) (<i>n</i> = 1628) %	Current Sample (<i>n</i> = 434) %	Van Pelt (2003) (<i>n</i> = 1596) %
Elementary School	0.0	0.2	0.2	0.9
Some High School	1.1	3.3	2.1	4.8
High School Graduate or Equivalent	9.9	12.6	9.9	14.5
Some College	8.8	12.3	7.4	9.4
College Diploma/Certificate	24.0	28.3	27.4	27.2
Some Undergraduate University Studies	11.4	9.5	7.6	7.8
Bachelor's Degree	35.6	26.2	24.7	19.5
Master's Degree	6.2	3.7	15.7	8.4
Doctoral Degree	3.0	0.9	5.1	3.4

The income levels of the sample were normally distributed, with 22% in the middle income range of between \$58,600 and \$82,200 (Figure 1). About 20% of respondents chose not to answer this question. Almost 20% of public schoolers in the current sample had an income less than \$36 000, compared with 15% of homeschoolers. Priesnitz (1990) reported that in her sample of homeschoolers, 51% had an income less than \$30 000. Van Pelt's (2003) study reported 26.1% of homeschoolers fell into the less than \$35 000 income bracket.

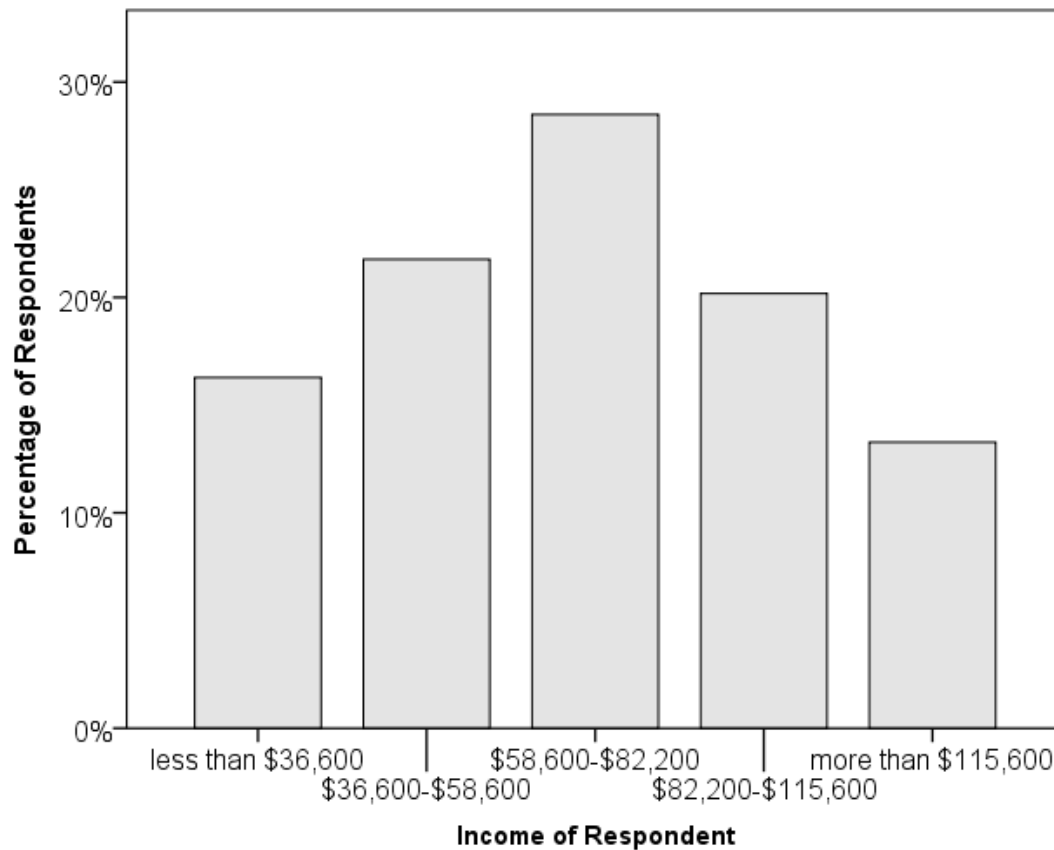


Figure 1: Income levels of all survey respondents (n = 565). Responses were given in an internet survey on environmental attitudes.

Regarding civic engagement, 84% reported that they volunteered in their community, almost half for multiple types of organizations. The two groups were comparable with 87% of homeschoolers and 76% of public schooling respondents volunteering. Within the sample of both homeschoolers and public schoolers, 93% of each type of respondent stated they had voted in the last five years. In general then, this sample is high in civic engagement. Van Pelt (2003) sampled adults (mean age of 21) who had been homeschooled and found that more than 82% of them volunteered in their community and more than 60% had voted in the previous five years. Compared to Van Pelt, the voting turnout was stronger in this sample; however, that may simply be due to a social desirability self-reporting bias.

Over half of the sample lives in Ontario (53%), 13% in Alberta, 12% in British Columbia, 5% in the Prairies, 7% in Quebec, 10% in Atlantic Canada. The majority of public schoolers were from Ontario (55%), Alberta (15%) and New Brunswick (12%). The majority of homeschooling respondents were from Ontario (52%), Alberta (13%) and British Columbia (13%). In comparison, Van Pelt (2003) and Ray (1994) also had a preponderance of homeschooling respondents from Ontario and Alberta. Van Pelt received 41% of responses from Ontario and 21.4% from Alberta; Ray received 32% of responses from Ontario and 37.3% from Alberta. Van Pelt theorized that this pattern could be because either more homeschool leaders or associations in these provinces are willing to distribute the survey or because of the Ontario-based nature of her study. She also suggests that perhaps these provinces do have the highest proportion of homeschooling families and this is reflected in the sample. Ontario does also contain the

highest percentage of the Canadian population. As with any of these studies, generalizations to the entire homeschooling population are not possible.

The sample was fairly evenly distributed among urban (29%), suburban (33%) and rural (38%) settings. Slightly more homeschoolers lived in rural areas (40%) as compared to public schoolers (33%). Priesnitz (1990) reported 59% of her sample of Canadian homeschoolers was from rural or small town areas and 41% from suburban or rural.

Table 9: Demographic survey results for homeschoolers and public schoolers

Demographic Variable		Homeschoolers		Public schoolers		Total
		<i>n</i>	%	<i>n</i>	%	%
Age	18-25	23	5.2	23	13.8	7.5
	26-34	93	20.9	31	18.6	20.3
	35-44	207	46.6	55	32.9	42.9
	45-54	106	23.9	42	25.1	24.2
	54-64	14	3.2	13	7.8	4.4
	65 or above	1	0.2	3	1.8	0.7
Gender	Male	65	12.6	14	7.5	11.3
	Female	449	87.4	173	92.5	88.7
Occupation	Professional/Technical	78	14.9	61	32.1	19.5
	Manager/Administrator	19	3.6	19	10.0	5.3
	Sales/Clerical	5	1.0	18	9.5	3.2
	Craft	3	0.6	1	0.5	0.6
	Entrepreneur	33	6.3	12	6.3	6.3
	Semiskilled/Unskilled	1	0.2	1	0.5	0.3
	Service	2	0.4	8	4.2	1.4
	Farm/Ranch/Agriculture	13	2.5	1	0.5	2.0
	Homemaker/Home	330	63.2	36	18.9	51.4
	Educator					
	Student	30	5.7	17	8.9	6.6
	Retired/Disabled	1	.2	11	5.8	1.7
	Unemployed	3	.6	3	1.6	0.8

	Other	4	0.8	2	1.1	0.8
Education	Elementary School	0	0	0	0	0
	Some High School	4	0.8	2	1.2	0.9
	High School Graduate or Equivalent	39	8.2	10	6.2	7.7
	Some College	41	8.6	19	11.8	9.4
	College	111	23.3	35	21.7	22.9
	Diploma/Certificate					
	Some Undergraduate	54	11.3	12	7.5	10.4
	University Studies					
	Bachelor's Degree	169	35.5	54	33.5	35.0
	Master's Degree	36	7.6	24	14.9	9.4
	Doctoral Degree	17	3.6	3	1.9	3.1
	Prefer Not to Answer	5	1.1	2	1.2	1.1
Province	Alberta	63	12.8	28	15.1	13.4
	British Columbia	65	13.2	14	7.5	11.6
	Manitoba	15	3.0	5	2.7	2.9
	New Brunswick	9	1.8	22	11.8	4.6
	Newfoundland and Labrador	2	0.4	1	0.5	0.4
	Northwest Territories	0	0	0	0	0
	Nova Scotia	21	4.3	5	2.7	3.8
	Nunavut	0	0	0	0	0
	Ontario	257	52.0	102	54.8	52.8
	Prince Edward Island	7	1.4	2	1.1	1.3
	Quebec	41	8.3	4	2.2	6.6
	Saskatchewan	13	2.6	3	1.6	2.4
	Yukon	1	0.2	0	0	0.1

Effects of Demographic Factors on Environmental Attitudes

Tests for significant effects of demographic factors on environmental attitudes were first done separately for the NEP and the CNS scales and then for the combined

variable of mean environmental attitude score. Univariate analysis of variance and a series of one-way ANOVAs found no significant effects of demographic factors of age, occupation, education, or income on environmental attitude scores. Univariate analysis of variance showed no significant interaction between the respondent's voting and volunteering records and mean environmental attitude score. NEP score was significantly affected by locale, $F_{(2, 699)} = 6.25$, $p < 0.005$. Post hoc tests revealed that urban respondents ($n = 205$, $M = 3.68$, $SE = 0.053$) scored significantly higher than rural respondents ($n = 265$, $M = 3.43$, $SE = 0.048$); the effect size was small ($r = 0.13$).

Many studies have been conducted to determine whether certain demographic variables are linked with stronger environmental attitudes. Higher education, liberal political beliefs, age (young people score higher) and gender (females score higher) have all been shown to be predictors of stronger environmental attitudes, though generally have been found to only account for less than ten percent of statistical variation (Dunlap & Van Liere, 1978; Grendstad, 1999; Johnson, Bowker, & Cordell, 2004; Rideout, Hushen, McGinty, Perkins, & Tate, 2005; Steger, Pierce, Steel, & Lovrich, 1989). Effects of religion are uncertain; highly religious people have been shown to score lower on environmental attitude measures in some studies (Deng, Walker, & Swinnerton, 2006) but no difference has been found in others (Helton & Helton, 2007).

In general, studies have found correlations with socio-demographic factors and score on the New Environmental Paradigm (NEP) scale to be weak, including urban or rural residence and level of income (Fransson & Garling, 1999; Grendstad, 1999; Kuhn & Jackson, 1989). Whether people of different ethnicities have different environmental attitudes is still inconclusive (Johnson, Bowker, & Cordell, 2004). Living in proximity to

severe pollution has been shown to result in a higher score on the NEP (Bostrom, Barke, Turaga, & O'Connor, 2006). Also, Canadians have been found to score higher than Americans (Steger & Witt, 1989).

Mayer and Frantz (2004) find no interaction between income, place of childhood residence, age or gender with scores on the Connectedness to Nature (CNS) scale. In a separate study, they also report a non-significant tendency for liberals to score higher than moderates and conservatives. The results around level of education are inconclusive, with one study showing no effect, and another finding that more educated respondents scored higher (Mayer & Frantz, 2004). The current study is fairly consistent with past CNS study results in that demographics do not have a significant interaction with environmental attitude score.

Conclusion

In summary, for this sample, demographics do not play a major role in how respondents scored on the environmental attitude scales, other than a slight effect for locale. Therefore, these variables were not carried through to other analyses in the study. Only religion had a significant interaction with mean score on the environmental attitude scales and will be discussed in Chapter 6. The homeschooling respondents in this sample were not notably different from the public schooling respondents in terms of demographics and, based on the literature, the sample is comparable to other studies conducted in the US and in Canada. The income level in this sample was somewhat higher than other Canadian studies conducted over the last twenty years. In general, the sample is well-educated, middle class and White, with mostly mothers answering the

survey. The results are consistent with other studies showing homeschoolers to be well educated and civically engaged.

Chapter 4: Motivations for Homeschooling

This chapter reviews the literature on homeschooling, with a focus on why people choose to homeschool. Parents were asked on the survey to indicate their reasons for deciding to homeschool. The reasoning for homeschooling was also part of the interview conversations. The motivations expressed in this survey are then compared to the literature, although it is recognized that people's motivations are complex and possibly sample-specific.

Homeschooling

For much of human history, homeschooling was the norm as education was centred on the family. In the mid-eighteenth century, the centrality of the family gave way to other institutions, including schools, but education at home persisted into the nineteenth century. By 1900, ninety percent of children aged 5 to 14 went to public schools (Carper & Hunt, 2007) where they would be separated by age (and often gender) and live highly structured days, learning reading, writing and arithmetic with hopes of economic advancement. However, homeschooling persisted and many famous figures, such as Einstein, Mozart, and George Washington, were homeschooled (Houston & Toma, 2003). In the United States, the first compulsory school attendance law was enacted in 1852 (Glenn, 2005). By 1920, it had become compulsory in all states to send children to school (Pink, 2001), although there were still pockets of parents who kept

their children home for various reasons, such as working on the farm and contributing to the household. In Canada, some scholars interpret the Charter of Rights and Freedoms as protecting a parent's right to direct their child's education (Luffman, 1997). Education is legislated at the provincial level and there are a variety of policies around curriculum and evaluation requirements for homeschooling, usually involving a registration process with either the Ministry, school board or a local school.

Parents choose to homeschool for a variety of reasons. With the counter-culture era of the 1960s and 1970s, some parents began to reject the traditional educational model and wanted to keep their children home as a protest against what they saw as an increasingly consumerist culture (Gaither, 2008a, 2008b). In the late 1970s and early 1980s, homeschooling also became popular amongst Christian conservatives, who were unhappy with the lack of religion in schools (Arai, 2000).

Legalized across North America as of 1980, there is recently a resurgence of parents deciding to homeschool, now seen as a viable educational option for a variety of families (Arai, 2000; Isenberg, 2007; Kunzman, 2009; Reich, 2002; Romanowski, 2001; Rothermel, 2004; Stevens, 2003). This resurgence has been fuelled by the development of the Internet (Pink, 2001), which allows access to a huge amount of curriculum-type information, and by incidences such as the shooting at Columbine High School in Colorado, which caused many parents to fear for their children's safety. According to Pink (2001), homeschooling is "the largest and most successful education reform movement of the last two decades" (p. 30).

Motivations for homeschooling

Families who homeschool have been categorized in the literature into two general groups based on their motivations for keeping their children at home: ideologues and pedagogues (Van Galen, 1988). Ideologues have decided to homeschool because they want their children to learn specific values and skills and they do not feel that will be achieved in public school. Pedagogues are more concerned that schools teach ineptly and fail to tap into the child's desire to learn.

Gaither (2008a, 2008b) discusses the same type of categories but classes them as left wing or right wing. He describes homeschooling as a political movement, an "act of protest against mainstream society" but one that is taken by people on both sides of the political spectrum (Gaither, 2008b, p. 226). Particularly in the United States in the time period since the 1960s, people have been putting a priority on self-determination and local control as well as individualism (Mayberry, Knowles, Ray, & Marlow, 1995). Within this shared ideology, homeschooling can be conceptualized as a reaction "against the mass culture of the modern liberal state" (Gaither, 2008b, p. 227).

Leftist parents decided to step outside of the mainstream, go 'back to the land' and change society by living an alternative lifestyle, including preventing their children from being 'assimilated' by 'the establishment' (Gaither, 2008b). Aspects of this lifestyle, including aversion to processed food, concern for the environment, breastfeeding and natural childbirth, are now more mainstream but still part of the "countercultural quest for personal fulfillment and individual self-expression" (Gaither, 2008b, p. 229). In this sense, homeschooling is a political choice (Mayberry, Knowles, Ray, & Marlow, 1995).

Stepping out of the cultural mainstream was also an impetus for the conservative right, manifesting as a Christian pro-family movement coming together in opposition against liberal constructivism, which was incompatible with their religious faith. Gaither (2008a) traces how Christian conservatives began creating their own schools where prayer was welcomed and racial minorities, evolution and sex education were not. Many of these schools failed for a variety of reasons (including lack of resources and theological disagreements within the leadership) and led to many parents choosing to homeschool. Gaither (2008a) summarizes the situation:

Having rejected the mainstream, denizens of both left and right looked for personal fulfillment within small, alternative communities. The social and political changes of the second half of the twentieth century made bedfellows of both radical leftists who wanted nothing to do with conventional America and conventional Americans who wanted nothing to do with a country that in their view had sold out to the radical left (p. 233).

Arai (2000) reports that although the motivations for homeschooling are similar in the United States and Canada, in Canada there is a less clear-cut division between ideologues and pedagogues, with Canadians reporting a wider variety of reasons for homeschooling, and religion not playing a major role. This finding was replicated in a study focused on Quebec (Brabant, Bourdon, & Jutras, 2003). Canadian homeschoolers do not express strong negativity to public schooling in general, but feel that it simply is not being done properly and so is not the best choice for their children (Arai, 2000). Arai (2000) attributes this softer position to the fact that homeschooling is appealing to a

broader segment of Canadian parents. Rothermel (2003) points out that parents' motivations may change after they have started homeschooling and also that there may be "too diverse a population pursuing home education to be neatly categorized" (p. 78).

The literature portrays a pan-ideological apprehension among homeschooling parents that schools may not transmit particular values that they want their children to believe in or that schools may teach certain values that are not desired or that the values of other students will somehow rub off on their children (Lubienski, 2000). These may be religious values or a dislike of particular teachings such as evolution or tolerance of homosexuality (Hill, 2000) or they may simply be values that are part of an alternative lifestyle, such as anti-consumerism or vegetarianism (Arai, 2000). There is an attitude that homeschooling "frees children and families from the coerced consensus-building processes of the state-run schools" (Ray, 2000b, p. 289). Van Galen (1988) points out this dissatisfaction regarding values taught or not taught in schools extends to ethnic minorities and women, who are often excluded from curriculum or portrayed in stereotypic fashions.

Individualized learning for their children is an often cited reason for homeschooling (Davies & Aurini, 2003). In public schools, there is a set curriculum that students must follow. Homeschooling can provide one-on-one teaching, focus on the needs and interests of the child, have the flexibility to be spontaneous, and take advantage of everyday experiences for learning (Romanowski, 2001). In this age of under-funded schools, classrooms are often overcrowded and students at different levels of learning may be put together in one class (Pawlas, 2001). Children are classified to be at a certain ability level and have trouble breaking free of this perception; homeschooling parents

report that children learn better once “freed from comparison with group norms of achievement” (Van Galen, 1988, p. 57).

Often parents take their children out of school after they have been experiencing difficulty and the school seemed unable to solve the problem (Van Galen, 1988). Dori Staehle (2000) tells the story of her gifted daughter who felt like she was in prison all day at school and became prone to “fits of anger and seclusion,” frustrated by having to learn at the same pace and in the same ways as classmates (p. 270). Staehle decided to homeschool both of her children, who she felt then blossomed and regained their love of learning. This is a familiar refrain in the homeschooling literature (see Holt, 1977-2001).

Pink (2001) writes that children “lose the intrinsic motivation and pure joy derived from learning and working when somebody takes away their sense of autonomy and instead imposes some external system of reward and punishment” (p. 32).

Homeschoolers often believe that it is partly because they find school boring that children lose their love of learning (Arai, 2000). Rankin (1998) describes school as a “counter-educational experience” that was a “mind-numbingly dull process of rote-learning and regurgitation” (p. 14). He also comments, “Fresh air and exercise did exist in that school, but they were called ‘sport’ – a system of ritualized punishment intended to undermine rather than instil a love of the outdoors” (p. 14). Parents who have chosen to homeschool believe that they are able to provide a more positive learning environment. Some parents feel that the public school system condones mediocrity in academic achievement (Lubienski, 2000) and that there is a lack of challenge (Arai, 2000). Although educators may not agree with these perceptions, some parents feel these problems are serious enough to choose the option to homeschool.

Another reason for homeschooling sometimes mentioned is that parents have had unpleasant experiences themselves in public school and so wish to spare their children the same agony. Arai (2000) reports on research that parents felt school was “a waste of time” and had memories of being left out or bullied in school (p. 206). These parents tended to have more positive learning experiences outside of school and wanted to give their children the same opportunity.

Another motivation reported in the homeschool literature is a rejection of the hierarchical nature of public schools. Parents question whether learning must happen in such a structured environment; they reject the notion of the teacher having all the knowledge and the student is meant to simply be a receiver. They also object to the idea that students must “learn particular subjects in particular ways at particular stages” in their lives (Arai, 2000, p.206). This rejection of hierarchy is not seen as often in religious homeschooling families, who, in contrast, tend to embrace the hierarchy of the family, with God at the head (Kunzman, 2009; Stevens, 2001).

A further motivation to homeschool is in order to enhance family relationships. By bringing their children home, parents hope that the quality of their relationship will be enhanced (Arai, 2000; Romanowski, 2001). By definition, homeschooling entails a great deal of parental involvement in the child’s life. Barwegen et al. (2004) in a survey of 127 suburban high school students found that students’ perception of high parental involvement (measured by items such as asking about school work, volunteering, reviewing work, and serving on committees) had a significant impact on academic achievement, both in public school and in homeschooled students. Students who perceived a high level of parental involvement in their education scored significantly

better on national college admission examinations. A high level of parental involvement therefore may partly explain the high academic achievement generally found in homeschooling families, although obviously this can also occur within public schooling families (Neuman & Aviram, 2003). The results also reflect that if a parent is worried about the academic achievement of their child, they may want to increase their level of involvement in the school and communicate that to their child. A study by the Fraser Institute concluded that homeschooling may help ameliorate the potential negative effects of low socioeconomic factors, as homeschooled children from all economic levels tend to outperform their peers academically (Basham, Merrifield, & Hepburn, 2007).

Lubienski (2000) suggests the homeschooling movement (in the United States at least) is “largely a reaction to the perceived decline in the state of public schools” (p. 208). Parents worry about safety and negative influences in public schools, some as serious as sexual activity and drugs, some as commonplace as teasing and cliques (Arai, 2000). Lubienski (2000) cites the Florida Department of Education’s survey of homeschooling families, which finds that negative perceptions of the public school environment were the primary reason given for homeschooling. Parents also want to avoid materialist and consumerist influences and see school as a major contributor to that lifestyle (Arai, 2000). They see it as their “right and responsibility” to protect their children, physically and emotionally, and decide that homeschooling is the best way to accomplish that goal (Arai, 2000, p. 207). A study by Green and Hoover-Dempsey (2007) suggests that many homeschooling parents see their choice as a positive one, something that makes their family happy and that is worth the effort.

Survey Results

In the current study, homeschoolers were asked to select their top five reasons for homeschooling (Table 10). Of the 443 respondents who answered this question, the most popular primary answer was “ability to teach child particular beliefs and values,” with the second most popular answer “desire for child-centred education”. A closer examination shows that the former was chosen mostly by the highly religious homeschoolers with the not-as-religious homeschoolers choosing the latter (Table 11). Examining which motivations were overall chosen most often (see Total column in Table 10), the most popular answer was “Desire for more parent-child contact,” followed closely by “Individualized learning plan or curriculum”. The motivation of “Difficulty of getting good teachers” was the least popular overall.

Respondents were also offered an ‘Other’ category, where they were free to enter in a comment regarding their motivation for homeschooling and 59 respondents did so. Many of the comments were around ideas of flexibility – in daily life and in the ability to travel unconnected from the school year. Spending time as a family and a feeling that homeschooling is fun was another theme. Key words included freedom, joy, empowerment, and independence. One respondent commented, “It is unnatural to hand one’s young over to strangers on a full time basis for 18 years” and others noted wanting to preserve natural learning, respect for children, and allowing the children to follow their own interests. Three respondents specifically mentioned God’s law that parents should educate children.

Table 10: Top Five Motivations For Homeschooling As Indicated by Survey Respondents

Motivation for Homeschooling	Primary* (%)	Second * (%)	Third * (%)	Fourth* (%)	Fifth* (%)	Total
Ability to accomplish more academically	7.4	13.3	12.0	12.9	8.8	54.4
Ability to teach child particular beliefs and values	26.0	13.3	7.0	4.3	5.9	56.5
Better prepare children for jobs/careers	1.1	1.8	5.6	5.9	6.5	20.9
Child's special needs (emotional/physical/learning)	7.0	3.8	6.8	2.5	3.8	23.9
Desire for child-centred education	15.3	8.1	7.0	7.7	6.8	44.9
Desire more parent-child contact	12.2	16.0	14.0	11.7	8.6	62.5
Difficulty of getting good teachers	0	.5	1.4	0.2	1.1	3.2
Emotional safety of the child	2.3	5.0	10.4	10.2	7.0	34.9
Physical safety of the child	0	1.1	1.6	3.6	3.4	9.7
Encouraged by results in other homeschooling families	0.9	4.3	7.7	7.2	10.8	30.9
Frustration with the public school system	5.6	4.3	5.0	5.4	8.1	28.4
Individualized learning plan or curriculum	13.1	13.3	9.5	13.8	10.8	60.5
Lack of appropriate curriculum in schools	0.9	2.5	1.8	3.8	4.7	13.7
Lack of discipline in schools	0	2.0	1.8	2.3	5.9	12
More directly influence moral environment	7.4	10.2	7.9	8.4	6.3	40.2
Other	0.7	0.5	0.7	0.2	1.4	3.5
*n=443						

Table 11: Primary Motivations for Homeschooling from Religious and Not as Religious Respondents

Primary motivation for homeschooling	Religious (<i>n</i> = 293)	Not as religious (<i>n</i> = 146)
	Column %	Column %
Ability to accomplish more academically	6.5	9.6
Ability to teach child particular beliefs and values	37.5	2.7
Better prepare children for jobs/careers	1.0	1.4
Child's special needs (emotional/physical/learning)	4.1	13.0
Desire for child-centred education	7.5	30.8
Desire more parent-child contact	12.3	11.6
Difficulty of getting good teachers	0	0
Emotional safety of the child	1.7	3.4
Physical safety of the child	0	0
Encouraged by results in other homeschooling families	1.4	0
Frustration with the public school system	4.8	7.5
Individualized learning plan or curriculum	11.3	17.1
Lack of appropriate curriculum in schools	1.0	0.7
Lack of discipline in schools	0	0
More directly influence moral environment	10.6	1.4
Other	0.3	0.7

Interview Results

Similar themes as in the quantitative data appeared in the follow up interviews, although motivation for homeschooling was not one of the main questions. Interview respondents discussed their reasons for homeschooling in terms of academic achievement, stronger critical thinking skills, a slower pace of life, better socialization and a stronger connection between parents and child.

Homeschooling parents felt that their children would benefit academically from being homeschooled and several had their children participate in provincial examinations where they scored above average, reassuring the parents that their children were learning the material. A homeschooled youth reported that she noticed her critical thinking skills seemed stronger than peers at university, commenting that she appreciated learning how to form opinions and evaluate an argument. Other homeschooling parents mentioned their motivation for homeschooling was to enable these strong critical thinking skills. Respondent 145 discussed elementary school where “everything was so dumbed down. For the kids who were brighter, it makes them very apathetic and there is not a lot of encouragement. So, for that reason, people homeschool.”

A strong motivation for homeschooling parents was a slower pace of life. Homeschoolers felt that by stepping out of the mould of public school, they were avoiding the hectic pace of getting to school on time, rushing to finish homework, feeling pressured by time constraints. Instead, homeschooling provided them with a sense of ease, being “laid-back” and relaxed, “calm and peaceful.” One respondent said, “There is a lot more creativity, a lot more free time. A lot more time for discussions and to explore things together as a family” (R732). This pace of life tied in with their and their children’s ability to enjoy learning without feeling stress or pressure.

Improved socialization was a motivation for several of the interviewees. Several mentioned reading research on socialization of homeschoolers before they made the decision to homeschool and also meeting other homeschooled children who impressed them. Age-mixing, community involvement, and the ability to choose a peer group were all mentioned in multiple interviews. Respondent 38 summed up:

The kids are far more well-socialized being homeschooled than in a classroom. When they meet other kids, the first words out of their mouth aren't what grade are you in, because it doesn't matter--you are just another kid and I can play with anybody. They get along with kids of all different ages, all of them do; they play with the littlest ones and the older kids that are homeschooled play with them. And so it doesn't matter what grade you are in or what school you go to, what class you are in or any of that weird isolationist stuff that was happening and that seems to happen with school age kids. They get along with adults - my kids are constantly talking to other adults and I'm constantly being told how interesting they are to talk to because they don't have this barrier that they aren't allowed to talk to parents and other people. So I think that socialization is far greater--they certainly don't have any problems at all. And they are involved in so many activities; it is not like they don't get to see other kids all the time. So, that was another advantage, we could be more involved with things because there is no homework. It is Home Work (laughs) during the day. We are done school. So when my husband comes home, he gets to spend time with the kids and we can do things in the evening as a family.

A strong parent child relationship was mentioned by several interviewees, though for some it was a result of homeschooling more than a motivation. Homeschooling parents reported on the children being more involved in family life and helping with household tasks. Several parents felt that homeschooling had built a closer bond with their children,

partly because they were more aware of how the children were spending their days and what they were learning. Home life flowed into learning, with no separate ‘school life’, which resulted in closer family ties.

The more religious interview participants discussed their problems with public school curriculum, particularly around evolution and sex education. One interviewee explained: “the public school system has started to really move away from values. They teach children the UN Children’s Charter of Rights and Freedoms very early to kids, which is not always helpful. Now they are teaching homosexuality as a viable lifestyle as early as kindergarten and the sex education programs that they teach is I think, some of it is deplorable” (R145). This public school curriculum did not match the values of the family and so they chose to homeschool.

Several families had problems in school including dealing with severe allergies and bullying. One respondent reported of her son, “He was totally unchallenged in the public school system and frustrated and had almost given up and had lost his joy in learning” (R742). In these cases, the parents felt that the public school system was not receptive enough to deal with the needs of the children.

Many interviewees simply said that homeschooling was the best choice for their family: “We aren’t doing this because we have a problem, we are doing it because it is the best thing, it is the best choice, and it is working for us,” (R38); “I didn’t really have a problem with the school system. It just wasn’t working for my son. A lot of kids do really well in the school system and they love it. And if my son or my kids would have really enjoyed being there, then maybe I wouldn’t have considered homeschooling so much. Though in hindsight, I think maybe it is still the better choice. But it isn’t that I

think school is so terrible, I just think that this is better,” (R700). Clearly, homeschooling parents are deeply committed to their children and also to providing quality education.

Discussion

In this study, results showed that religion did play a role in parents’ motivations in this sample. Religious homeschooling parents were choosing this educational model primarily in order to pass on their particular Christian values and beliefs. The popularity of motivations around teaching specific values along with interview results specifying the importance of religion refute the Canadian literature, which suggests religion is not playing a role in why parents are choosing to homeschool. Brabant, Bourdon and Jutras (2003) in their Quebec study find that motivations related to religion rank very low in their sample. Their results may be due to the unique socio-political and cultural context in this distinctive province. The contrast between this study and the Quebec results also highlights the sample specific nature of these studies, as also observed by Arai (2000). It may also be the case that the current study tapped into a particularly religious group of homeschoolers. Kunzman’s (2009) study focused exclusively on Christian homeschoolers and finds that religion is a common motivator. In the current study and others, the not-as-religious homeschooling parents are more concerned with child-centred education (Stevens, 2001). The links between religion and educational philosophy are explored in greater depth in Chapter 7.

Among the current study’s sample, there did not appear to be any anti-school sentiment. The survey results illustrated that homeschooling parents were not against the school system *per se*. This supported the Canadian literatures’ conclusion (Arai, 2000).

Negative attitudes surrounding safety and negative influences in the public education system did not seem to be a factor in this sample of homeschoolers, contrary to Lubienski's (2000) Florida study described above. The one negative that was mentioned was that some parents felt the public school system was not leading to joy in learning, also mentioned by Arai (2000).

The popularity of individualized curriculum as a motivation to homeschool is consistent with studies by Brabant, Bourdon and Jutras (2003), Davies and Aurini (2003) and Arai (2000). An ability to accomplish more academically was also a popular answer on the survey and this was repeated in the interviews. The percentage of respondents indicating an academic motivation was not as high as in Priesnitz (1990), where 72% of respondents said they were homeschooling for academic/philosophical reasons. However, she only offers three motivations to choose from (academic/philosophical, religious, and location). The current study's results were more consistent with Van Pelt's (Van Pelt, 2003), where just less than 60% of respondents indicated an academic motivation. Motivational reasons are often related and difficult to tease apart. Individualized curriculum is most likely related to academic achievement as the child would be able to work in a way that suits them and at their own pace.

Both religious and not-as-religious homeschoolers were concerned with building a stronger bond between parents and children, as Romanowski (2001) and Arai (2000) have also shown. However, in the interviews, family bonding was mentioned as a result of homeschooling, not as a motivation. A desire for a slower pace of life was not an option in the survey questions but was entered by some respondents in the 'other' category and was also brought up as a main motivation in the interviews. This suggests that this idea

should be incorporated into future surveys. A slow pace of life was said to be related to an ability to spend time as a family by interview respondents, once again showing the interconnectness of motivations.

Another category that was not on the survey but mentioned in the interviews was improved socialization. Ironically, lack of socialization is usually considered by outsiders to be one of the problems with homeschooling (Mayberry, Knowles, Ray, & Marlow, 1995), but some interviewees had decided to homeschool because of the greater opportunities it afforded to mix with community members and peers of different ages. Brabant, Bourdon and Jutras (2003) also report improved socialization was an often cited motivation for homeschooling.

Conclusion

Homeschools have a long history and are growing in popularity. Particularly in Canada, this group is understudied and more research is needed to better understand why some Canadians choose to homeschool. For homeschooling parents in the sample, the important motivating factors for deciding to homeschool were the ability to provide individualized learning for their children, hopefully leading to greater academic success, and the ability to have more time as a family. Religious respondents were unique in their emphasis on passing on their particular values and beliefs through homeschooling. Problems in school, such as lack of good teachers, safety concerns, or concern about adequate curriculum were not strong motivators in this study. The results of this study lend credence to the division between ideologues and pedagogues in Canadian

homeschoolers and suggest that these two sub-groups differ as to the motivations for homeschooling.

Chapter 5: Homeschooling and Environmental Attitudes

Connections between homeschooling literature and that of environmental education suggest that investigating the ecological worldviews of homeschoolers is a worthwhile endeavour. To that end, the results of the survey and interviews regarding the environmental attitudes of homeschoolers are explored. Both the New Ecological Paradigm Scale and the Connectedness to Nature Scale were used to measure environmental attitudes, supplemented by qualitative interviews.

Homeschooling and Environmental Consciousness

Some of the literature on homeschooling paints an almost utopian picture of intelligent, self-confident children playing and learning respectfully within their loving community (Farenga, 1999; Holt, 1969; Long, 2001; Lyman, 1993). Less than 1% of Canadian children are experiencing this type of education, and it may or may not live up to the ideal often described. The literature suggests that homeschooling is a successful educational alternative in terms of academic achievement and personal growth (leadership, self-esteem, behaviour), but there has been no research conducted until now that examines the environmental attitudes of homeschoolers.

The major works on education and homeschooling by Gatto (2002), Holt (1969, 1981) and others such as Gaither (2008a) and Llewellyn (1998) do not specifically mention nature or the environment in terms of living sustainably; however, there are themes surrounding alienation, being outdoors, interdisciplinary learning, and intellectual

autonomy that can be connected with positive attitudes toward the environment.

Ecological language, such as notions of balance and harmony, are also evident in the homeschooling literature. The work of Paulo Freire (2004), with its connection to political empowerment through education, is often reflected in homeschooling literature.

A notable exception is the Christian educational model of Charlotte Mason, which is often used as a guide by homeschoolers (Cooper, 2004; Gardner, 1997). Charlotte Mason included time outside as part of her curriculum - she thought all students should spend at least a couple of hours outdoors daily—particularly young children but also up to college age. This time could be a mixture of walking, playing, and activities involving observation skills. For older children, Mason also recommended nature study, with the goal of teaching reverence for life (Gardner, 1997).

In contrast, the literature discussing environmental education in the public school curriculum points out the superficiality of what is considered environmental education in schools (Branch, 1994; Huckle, 1993). Critics contend there tends to be no examination of the cultural tendencies that have landed us in an environmental crisis; rather the curriculum is focused on small actions like recycling and picking up litter, which unfortunately will not be enough to solve our problems. Environmental education is seen as something separate from the main curriculum, creating a feeling that environmental problems are not connected to everyday life.

Both the homeschooling literature and literature on environmental education contain themes that share overlapping goals. As Figure 2 illustrates, the homeschooling literature reviewed in the course of this study contained themes having to do with avoiding alienation, being part of a collective, maintaining autonomy, balance and

harmony and learning in an interdisciplinary fashion. Although using different terminology, the environmental education literature can be seen to mirror these themes. Almon (2006) discusses the 'healthy essentials' of education, including nurturing relationships with caring adults; time for creative, unstructured play; hands-on and artistic activities; time outdoors; peaceful space to be alone. The overarching idea in both sets of literature is that it may be more important how a child learns than what facts they are learning. This overlap in the literature of the two fields of homeschooling and environmental education suggest the two may have common goals. Both homeschoolers and environmental educators are striving to impart critical thinking skills, a cooperative work atmosphere, with more equality and engagement and an emphasis on real life learning with the ultimate goal of a better society. In a sense, it is not that homeschooling sets out to teach environmental education, but it offers children aspects of learning that are also linked with environmental education.

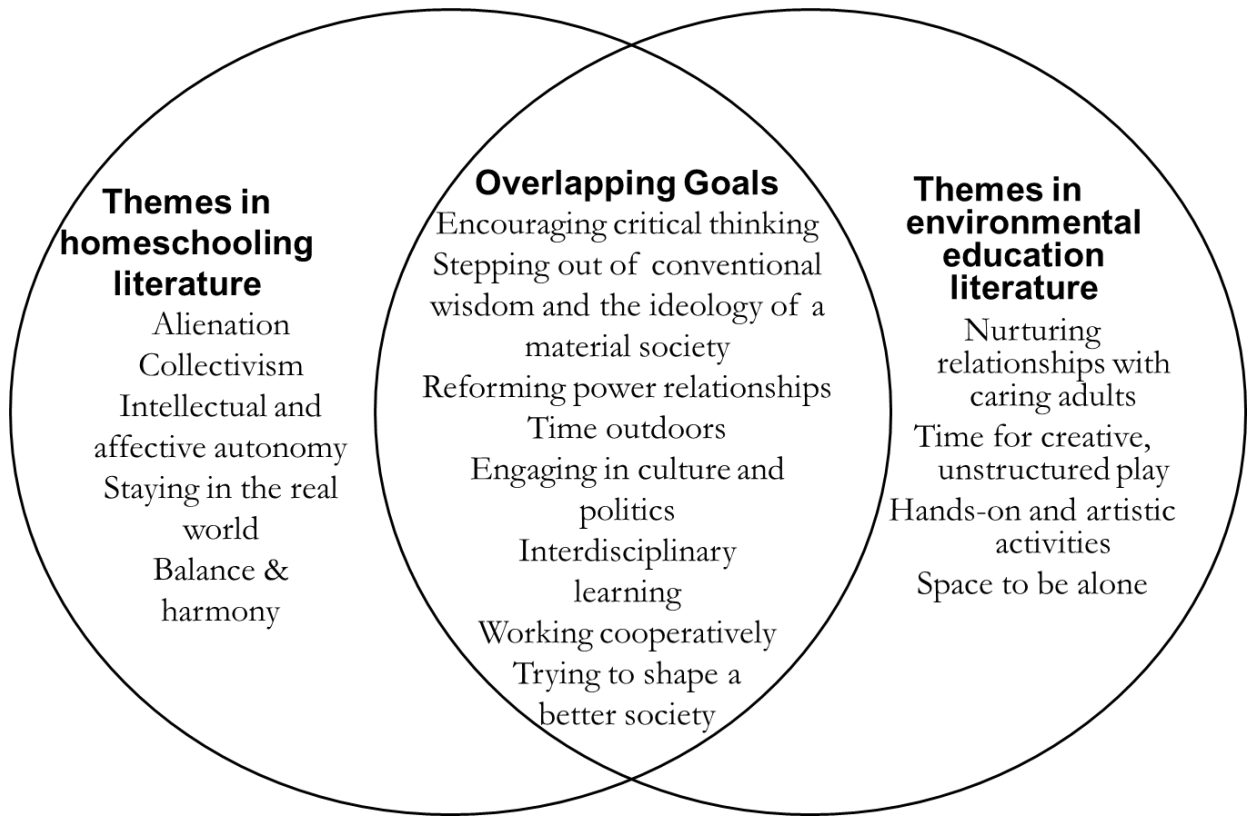


Figure 2: Overlapping Themes in the Literature of Homeschooling and Environmental Education

Homeschooling may be an example of a form of constructivist education, which emphasizes active social learning, dialogue rather than hierarchy, critical thinking rather than rote learning, and engagement rather than obedience. However, there may also be a subset of homeschooling that adheres to the essentialism philosophy, perhaps even more formal and rigid than the public school system, in which case their values may turn out to be very different (Arai, 2000). Attitudes toward the environment may change depending on which side of the ideologue–pedagogue spectrum parents fall.

In his influential research, Dunlap and his assistant, Van Liere (1978), study whether society is moving toward a more ecological worldview, as measured by the New

Ecological Paradigm Scale. Currently, most members of our society subscribe to the Dominant Social Paradigm, which emphasizes material wealth, belief in progress, belief in the abilities of technological fixes and a view of nature as something for human use. This is in contrast to what is hopefully a new paradigm of an ecological worldview, which acknowledges limits to growth, the importance of the balance of nature and the intrinsic value of nature (Dunlap & Van Liere, 1978). Given the various motivations that parents give for homeschooling, such as family unity and intellectual independence (Van Pelt, 2003), there is some connection with the different worldviews/paradigms that are contrasted by Dunlap and Van Liere (1978; Dunlap, 2008; Dunlap, Van Liere, Mertig, & Jones, 2000).

Higher New Ecological Paradigm (NEP) scores are associated with values of harmony, collectivism, intellectual and affective autonomy while lower NEP scores are associated with conservative and materialist values (Dunlap, Van Liere, Mertig, & Jones, 2000; Schultz & Zelezny, 1999). This has been tested using Schwartz's model of human values (1992), which asks respondents to rate fifty-six values on a seven-point scale, with seven indicating that value has supreme importance as a guiding principle in life. According to Schwartz's model (1994), the fifty-six values can be classified into ten value types which can then be placed into four categories: openness to change (indicating value of self-direction), conservatism (indicating value of tradition, conformity), self-transcendence (indicating value of universalism and benevolence), and self-enhancement (indicating value of achievement and power). As Schultz et al. (2005) report, multiple studies have shown that self-transcendence values are positively correlated with homocentric and ecocentric values (i.e. score higher on NEP) and with more self-reported

environmental behaviours, while self-enhancement values positively correlate with egoistic values (p. 459). While the scope of this study did not permit utilizing Schwartz's scale, how homeschoolers score on the NEP scale and their comments in follow up interviews shed light on how this educational model may be influencing environmental attitudes.

Survey Results

Given the tone of the homeschooling literature, it was somewhat surprising to discover that in the current sample, on average, homeschoolers scored lower on the environmental attitude scales (combined score for New Ecological Paradigm and Connectedness to Nature scales) ($M = 3.48$, $SE = 0.034$) than public schoolers ($M = 3.81$, $SE = 0.041$). This difference was found to be significant with equal variances not assumed ($t_{460} = -6.142$, $p < 0.001$) with a medium effect size ($r = 0.3$). As mentioned in Chapter 3, demographic variables did not have any significant impact, other than a slight effect with locale and a significant effect of religion. The sample was then broken into three groups: religious homeschoolers scored lower on the environmental attitudes scale ($n = 326$, $M = 3.18$, $SE = 0.039$) than not-as-religious homeschoolers ($n = 161$, $M = 4.12$, $SE = 0.037$), with public schoolers coming in the middle ($n = 190$, $M = 3.81$, $SE = 0.028$). The grouping was found to have a significant effect on mean environmental attitude score ($F_{(2,684)} = 143.1$, $p < 0.001$) with a large effect size ($r = 0.55$). Using harmonic means in post-hoc Games-Howell test (to account for differences in sample size and equal variances not assumed), it was shown that the means for all three subsets were significantly different from each other ($p < 0.001$).

An ANCOVA was run on the dependent variable of environmental attitude score, independent variable homeschooled or public schooled and covariate religious or not as religious. The covariate, religiosity², was significantly related to the environmental attitude score ($F_{(1, 663)} = 179.9, p < .001$, partial eta squared = 0.213). There was no significant effect of homeschooling versus public schooling after controlling for the effect of religion. These results suggest that religion is an important moderating factor in how respondents scored on the environmental attitude scales, and that once this is taken into consideration, homeschoolers do differ from public schoolers. Therefore, in the following analysis, the homeschooling category is broken into religious or not-as-religious. A category of public schoolers is included for comparison purposes.

Results: New Ecological Paradigm

After the above analysis was conducted using the combined scores of the New Ecological Paradigm scale and the Connectedness to Nature scale, each scale was then analyzed separately. The results suggest that religious homeschoolers do not follow the New Ecological Paradigm as closely as the not-as-religious homeschoolers and public schoolers.

When all NEP items were taken together, the mean score among the different categories of respondent was found to be significantly different ($F_{(2, 675)} = 121.46$,

² Religiosity was measured by asking: Would you describe your religious beliefs as: strongly important, somewhat important, not that important, not at all important in your life?

$p < 0.001$) with the pattern of religious homeschoolers scoring the lowest ($n = 326$, $M = 3.17$, $SE = 0.039$), public schoolers in the middle ($n = 190$, $M = 3.76$, $SE = 0.044$), and not-as-religious homeschoolers scoring highest ($n = 160$, $M = 4.09$, $SE = 0.044$).

Examining each item separately allowed other patterns to emerge. For almost half of the questions, not-as-religious homeschoolers and public schoolers did not have a significantly different mean score, though both categories are significantly different from the religious homeschoolers. Table 12 shows the responses from each of these categories for each item on the New Ecological Paradigm Scale. A total pro-NEP response was calculated by summing the mildly agree/disagree and strongly agree/disagree, depending on whether the item was reverse coded.

The strongest pro-NEP response was on item 9 where all three groups scored over 90% in agreement that humans are still subject to the laws of nature, though not-as-religious homeschoolers scored significantly higher than the other two groups. Items 3, 8 and 13 all had over 60% agreement from all groups, all having to do with whether nature is resilient enough to cope with the impact of humans. For items 3 and 13, religious homeschoolers scored significantly lower than the other two groups, which were not statistically different. For item 13, religious homeschoolers were not significantly different than public schoolers. There was also strong agreement on item 5, regarding the abusive way humans are treating the environment, though once again, religious homeschoolers scored significantly lower. The other questions having to do with the ecocrisis (items 10 and 15) had significantly lower agreement from the more religious homeschoolers (35 and 52% respectively) than the not-as-religious homeschoolers and public schoolers.

The lowest pro-NEP score was on item 6 where all three groups tended to mainly agree that the earth has plenty of untapped resources and yet there was low support for item 14 that states humans will eventually learn enough about nature to control it. Item 4 about whether human ingenuity will keep the earth liveable has a fairly high percentage in the unsure column from all three categories of respondents (from 16 to 30%) and the two homeschooling groups (religious and not-as-religious) were not statistically different. So, in general, the sample had a high respect for nature and recognized that humans were part of nature and though we were not treating it very well, nature would survive. The religious homeschoolers did not believe that we were in an environmental crisis, but none of the categories were quite sure about what would happen in the future.

There was less consistency in the attitudes for item number 1 on the population of humans that the earth can support, where religious homeschoolers scored a full 54 percentage points below less religious homeschoolers and 42 points below public schoolers. Item 12, about humans ruling over nature, also had a large gap, with religious homeschoolers scoring 68 points below less religious homeschoolers and 53 points below public schoolers; all three groups were significantly different from each other. Religious doctrine might have played a large part in the trend on these two questions. Regarding Item 1, some religious doctrines did see the population growth of humans as a positive trend and not a problem (Peterson & Liu, 2008). Item 12 is considered an example of a dominion mindset, which is explored further in Chapter 6.

A seeming contradiction was present where the not-as-religious homeschoolers agreed with item 11 that the earth had very limited resources (73%) and yet also agreed with item 6 that the earth had plenty of natural resources (50%). Given their high

disagreement with item 2 that humans have the right to modify nature (67%) and high agreement with item 7 that plants and animals have a right to existence (92%), perhaps the attitude reflected was that although there are plentiful resources, the amount available for human use was limited. This tied in with the idea that nature will survive despite human abuse though there was concern about the consequences for humans and about upsetting the balance of nature.

Table 12: Responses to New Ecological Paradigm Scale Items by Religious and Not as Religious Homeschoolers and Public Schoolers

Item #	Statement	Category	SA (%)	MA (%)	U (%)	MD (%)	SD (%)	Total % Pro-NEP
1	We are approaching the limit of the number of people that the earth can support.	Religious Home schoolers ^{a*}	4.9	13.2	14.4	20.9	46.6	18.1
		Not-as-religious Homeschoolers ^{b**}	42.9	29.2	11.8	9.3	6.8	72.1
		Public Schoolers ^{b***}	25.8	34.2	23.2	11.6	5.3	60
2	Humans have the right to modify the natural environment to suit their needs.	Religious Homeschoolers ^a	10.8	37.2	5.5	32	14.5	46.5
		Not-as-religious Homeschoolers ^b	3.1	23.1	6.9	39.4	27.5	66.9
		Public Schoolers ^b	2.6	32.1	10	34.7	20.5	55.2
3	When humans interfere with nature it often produces disastrous consequences .	Religious Homeschoolers ^a	32.2	41.5	5.3	14.2	6.8	73.7
		Not-as-religious Homeschoolers ^b	49.4	35.6	3.8	4.4	6.9	85
		Public Schoolers ^b	43.7	40.5	4.7	5.3	5.8	84.2
4	Human ingenuity will	Religious Homeschoolers ^b	7.7	21.3	16	30.6	24.4	55

	ensure that we do not make the earth unlivable.	Not-as-religious Homeschoolers ^b	4.4	13.8	29.6	24.5	27.7	52.2
		Public Schoolers ^a	10	30	27.4	21.1	11.6	32.7
5	Humans are severely abusing the environment.	Religious Homeschoolers ^a	36.9	35.4	4.6	17.5	5.5	72.3
		Not-as-religious Homeschoolers ^b	72.2	19	1.3	2.5	5.1	91.2
		Public Schoolers ^b	55.3	29.8	3.7	5.3	5.9	85.1
6	The earth has plenty of natural resources if we just learn how to develop them.	Religious Homeschoolers ^a	39	37.4	9.5	9.2	4.9	14.1
		Not-as-religious Homeschoolers ^c	17.4	32.3	13	21.1	16.1	37.2
		Public Schoolers ^b	23.8	43.4	10.1	18	4.8	22.8
7	Plants and animals have as much right as humans to exist.	Religious Homeschoolers ^a	33.2	20.6	6.2	22.2	17.8	53.8
		Not-as-religious Homeschoolers ^b	77	14.9	3.7	3.1	1.2	91.9
		Public Schoolers ^b	69.7	20.7	3.7	3.2	2.7	90.4
8	The balance of nature is strong enough to cope with the impacts of modern industrial nations.	Religious Homeschoolers ^a	5.2	14.5	12.9	36.6	30.8	67.4
		Not-as-religious Homeschoolers ^b	2.5	3.8	5.6	30	58.1	88.1
		Public Schoolers ^a	2.1	13.9	11.8	31.6	40.6	72.2
9	Despite our special abilities, humans are still subject to the laws of nature.	Religious Homeschoolers ^a	60.8	29.5	4.4	2.5	2.8	90.3
		Not-as-religious Homeschoolers ^b	80.5	15.6	2.6	0	1.3	96.1
		Public Schoolers ^a	64.4	26.1	4.3	4.3	1.1	90.5
10	The so-called “ecological crisis” facing	Religious Homeschoolers ^a	28.2	25.8	11.3	19	15.6	34.6
		Not-as-religious	3.1	7.5	5	25.5	59	84.5

	humankind has been greatly exaggerated.	Homeschoolers ^c						
		Public Schoolers ^b	7.4	10	14.2	28.9	39.5	68.4
11	The earth is like a spaceship with very limited room and resources.	Religious Homeschoolers ^a	7.7	16.7	8.3	36.1	31.2	24.4
		Not-as-religious Homeschoolers ^c	31.7	41.6	6.2	18	2.5	73.3
		Public Schoolers ^b	24.3	33.3	18	18	6.3	57.6
12	Humans were meant to rule over the rest of nature.	Religious Homeschoolers ^a	52.9	21.8	4.3	5.2	15.7	20.9
		Not-as-religious Homeschoolers ^c	1.3	4.4	5.6	16.3	72.5	88.8
		Public Schoolers ^b	7.4	10.5	8.4	24.2	49.5	73.7
13	The balance of nature is very delicate and easily upset.	Religious Homeschoolers ^a	21.9	38.9	9.9	24.4	4.9	60.8
		Not-as-religious Homeschoolers ^b	33.1	41.3	10.6	13.8	1.3	74.4
		Public Schoolers ^b	31.7	39.2	10.1	17.5	1.6	70.9
14	Humans will eventually learn enough about how nature works to be able to control it.	Religious Homeschoolers ^b	1.8	8.9	13.8	35.1	40.3	75.4
		Not-as-religious Homeschoolers ^b	0.6	7	20.3	31.6	40.5	72.1
		Public Schoolers ^a	3.2	16.8	26.3	30.5	23.2	53.7
15	If things continue on their present course, we will soon experience a major ecological catastrophe.	Religious Homeschoolers ^a	21.6	31.2	16	17	14.2	52.8
		Not-as-religious Homeschoolers ^b	56.6	28.3	8.8	3.8	2.5	84.9
		Public Schoolers ^b	44.7	31.4	14.9	5.3	3.7	76.1
SA=Strongly Agree; MA=Mildly Agree; U=Unsure; MD=Mildly Disagree; SD=Strongly Disagree *Religious Homeschoolers $n = 325$ ** Not-as-religious Homeschoolers $n = 160$ ***Public Schoolers $n = 189$								

Even numbered items are reverse coded.
Significant (at the 0.05 level) differences between categories are expressed with a superscript letter, based on Games-Howell post-hoc multiple comparisons.

Results: Connectedness to Nature

The mean score overall on the Connected to Nature Scale (CNS) was 3.61 ($n = 674$, $SE = 0.033$). Religious homeschoolers scored a mean of 3.19 ($n = 325$, $SE = 0.048$), not-as-religious homeschoolers had a mean of 4.16 ($n = 159$, $SE = 0.044$), and public schoolers had a mean of 3.87 ($n = 190$, $SE = 0.050$). The three groups were significantly different ($F_{2, 673} = 103.12$, $p < 0.001$), following the same pattern as the NEP scores. Results for each item on the CNS for the current study are shown in Table 13. On half of the questions, all three categories of respondents scored significantly different from each other. A total pro-CNS response was calculated by summing the mildly agree/disagree and strongly agree/disagree, depending on whether the item was reverse coded.

In general, the religious homeschoolers scored lower on the CNS scale than not-as-religious homeschoolers and public schoolers, with two exceptions, items 4 and 14. The consistency in response to item 4, where all three categories had over 67% agreement, suggests the sample felt quite connected to nature. Religious homeschoolers scored the highest on this item with 76% agreement. On item 14, 64% of religious homeschoolers felt that their personal welfare was interconnected with the natural world, higher than the 55% of public schoolers who agreed but not as high as the 73.8% of not-as-religious homeschoolers who agreed.

Strong agreement (85-97%) appeared on item 3, recognizing the intelligence of other living organisms. Another item with high agreement from all categories was item 8,

where between 77 and 80% of all respondents agreed that they have a high level of understanding of how their actions affect the natural world. Item 8 was the sole question where all three categories of respondents did not score significantly different from each other. Items 12 and 13 had the highest levels of disagreement, with the religious homeschoolers scoring almost 49% lower than the not-as-religious homeschoolers on item 12 and 53% lower on item 13. These items had to do with the place of humans in the hierarchy of other beings, which tied strongly to interpretations of the Bible, as further explored in Chapter 6.

Table 13: Responses to Connectedness to Nature Scale Items by Religious and Not-as-Religious Homeschoolers and Public Schoolers

Item #	Statement	Category	SA (%)	MA (%)	U (%)	MD (%)	SD (%)	Total % Pro-CNS
1	I often feel a sense of oneness with the natural world around me.	Religious Homeschoolers ^a *	27	28.2	13.8	16.9	14.1	55.2
		Not-as-religious Homeschoolers ^c **	44.7	39.1	9.9	5.6	0.6	83.8
		Public Schoolers ^{b****}	35.8	39.5	11.1	12.6	1.1	75.3
2	I think of the natural world as a community to which I belong.	Religious Homeschoolers ^a	33.3	34	6.8	15.7	10.2	67.3
		Not-as-religious Homeschoolers ^c	63.1	28.1	6.3	1.9	0.6	91.2
		Public Schoolers ^b	48.9	38.4	4.2	7.4	1.1	87.3
3	I recognize and appreciate the intelligence of other living	Religious Homeschoolers ^a	46	39	2.8	7.7	4.6	85
		Not-as-religious Homeschoolers ^c	76.7	20.1	2.5	0.6	0	96.8
		Public Schoolers ^b	55.3	36.3	2.6	5.3	0.5	91.6

	organisms.							
4	I often feel disconnected from nature.	Religious Homeschoolers ^b	1.2	12.1	10.6	38.8	37.3	76.1
		Not-as-religious Homeschoolers ^{a/b}	1.9	21	7	40.8	29.3	70.1
		Public Schoolers ^a	1.1	20.6	10.6	38.6	29.1	67.7
5	When I think of my life, I imagine myself to be part of a larger cyclical process of living.	Religious Homeschoolers ^a	24.8	28.2	13	14.9	19.2	53
		Not-as-religious Homeschoolers ^c	57.8	31.1	8.1	3.1	0	88.9
		Public Schoolers ^b	43.9	31.2	14.8	5.8	4.2	75.1
6	I often feel a kinship with animals and plants.	Religious Homeschoolers ^a	19.8	22	8.7	22.6	26.9	41.8
		Not-as-religious Homeschoolers ^c	53.8	35.6	5.6	2.5	2.5	89.4
		Public Schoolers ^b	34.7	36.3	11.6	14.7	2.6	71
7	I feel as though I belong to the Earth as equally as it belongs to me.	Religious Homeschoolers ^a	16.1	16.4	9.9	20.4	37.2	32.5
		Not-as-religious Homeschoolers ^c	43.8	33.1	15	4.4	3.8	76.9
		Public Schoolers ^b	32.3	33.3	15.9	13.2	5.3	65.6
8	I have a deep understanding of how my actions affect the natural world.	Religious Homeschoolers ^a	29.3	48.1	9.3	11.1	2.2	77.4
		Not-as-religious Homeschoolers ^a	30.4	49.4	13.3	6.3	0.6	79.8
		Public Schoolers ^a	28.6	48.7	11.1	10.1	1.6	77.3
9	I often feel part of the	Religious Homeschoolers ^a	20.4	26.5	17.3	19.1	16.7	46.9

	web of life.	Not-as-religious Homeschoolers ^b	40.5	44.3	9.5	4.4	1.3	84.8
		Public Schoolers ^b	32.3	46	9	11.1	1.6	78.3
10	I feel that all inhabitants of Earth, human, and nonhuman, share a common 'life force.	Religious Homeschoolers ^a	26.6	16.4	11.5	9	36.5	43
		Not-as-religious Homeschoolers ^b	52.2	23.3	13.8	6.9	3.8	75.5
		Public Schoolers ^b	37.9	32.1	15.3	7.4	7.4	70
11	Like a tree can be part of a forest, I feel embedded within the broader natural world.	Religious Homeschoolers ^a	14.6	31	13.3	19.2	22	45.6
		Not-as-religious Homeschoolers ^b	40.4	38.5	12.4	7.5	1.2	78.9
		Public Schoolers ^b	28.9	44.2	14.2	10	2.6	73.1
12	When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature.	Religious Homeschoolers ^a	35.4	30.2	10.2	12.6	11.7	24.3
		Not-as-religious Homeschoolers ^c	0.6	13.1	13.1	34.4	38.8	73.2
		Public Schoolers ^b	5.3	25.4	15.9	28.6	24.9	53.5
13	I often feel like I am only a small part of the natural world around me, and that I am no more important than the	Religious Homeschoolers ^a	8.9	10.5	3.1	21.8	55.7	19.4
		Not-as-religious Homeschoolers ^b	31.3	41.3	9.4	13.8	4.4	72.6
		Public Schoolers ^b	25.8	40.5	11.1	14.2	8.4	66.3

	grass on the ground or the birds in the trees.							
14	My personal welfare is independent of the welfare of the natural world.	Religious Homeschoolers ^a	11.1	15.4	9.5	27.7	36.3	64
		Not-as-religious Homeschoolers ^{a/ b}	11.3	8.8	6.9	24.4	49.4	73.8
		Public Schoolers ^{a/c}	12.7	18.5	13.8	21.7	33.3	55
SA=Strongly Agree; MA=Mildly Agree; U=Unsure; MD=Mildly Disagree; SD=Strongly Disagree *Religious Homeschoolers <i>n</i> = 325 ** Not-as-religious Homeschoolers <i>n</i> = 159 ***Public Schoolers <i>n</i> = 190 Items 4, 12, and 14 are reverse coded. Significant (at the 0.05 level) differences between categories are expressed with a superscript letter, based on Games-Howell post-hoc multiple comparisons.								

Qualitative results

The quantitative data in this study suggested that religious homeschoolers had weaker environmental attitudes than either non-religious homeschoolers or public schoolers. Not-as-religious homeschoolers had the strongest environmental attitudes when compared to religious homeschoolers and public schoolers, based on the scales. However, the qualitative data allowed expansion of these results to illuminate that people's attitudes toward the environment are incredibly complex and difficult to characterize. For example, Respondent 372 considered herself to be very connected to nature and enjoyed camping and being in the fresh air. She also emphatically believed that humans were part of nature and are interconnected; however, she just as emphatically

did not believe that non-human organisms have rights, nor did she believe in climate change or the environmental crisis. But her religion did guide her to believe in a stewardship ethic and she believed that living modestly and frugally shows regard and respect for nature as God's creation. These themes of caring for nature in a general sense and enjoying spending time in nature but not believing in the environmental crisis were repeated by several interview respondents who were strongly religious.

In the interviews, the term 'conservation ethic' was used by several respondents who felt they were helping to steward the earth by reducing consumption and waste. Frugality and reducing waste seemed to form a strong part of homeschooler's ethic in general, partly necessitated by the loss of one parent's income. This led homeschooling families to make choices about having one car, using public transit or active transportation, having smaller houses, and limiting consumerism. Every day sustainable actions were mentioned by several interviewees as part of their discussion of environmental attitudes, including composting, avoiding unnecessary driving, recycling, and using cloth diapers. As Respondent 443 says of her family's green practices, "It is funny to pick it out because it is just part of what we do." Respondent 509 comments, "...a lot of things that are considered green are things that we have always done just because that is what we do... it is not done because it is green and because it is trendy, it is because that is what is better. In that sense, my attitude tends to be sensible, if it is sensible, it will tend to be better for the environment because that is what is more sensible. But not, not specifically I'm going to do this thing because it is the green thing to do." Several respondents mentioned that their ethic of not wasting stems from parents and grandparents who grew up during the Depression.

Respondent 518 identified a connection between her more environmental lifestyle and her choice to homeschool,

“When we became involved in homeschooling, we experienced a loss of income, which required me to be clever. But it also gave me a vehicle, I guess, toward thinking about doing things differently than I had done them before. So that I became you know, would ask myself the questions, why am I doing things a certain way. And when I couldn’t come up with an answer, I would start thinking about doing them another way.”

This realization led her to take actions such as giving up the family car, making her own cleaning solutions, hanging clothes outside—action which are environmentally-friendly but also very economical. Finding these actions fulfilling, she then became more interested in other environmentally friendly actions and also various environmental issues. She concluded, “We have come to this full circle thing that I am now thinking about the environment and making decisions but I have to tell you it was driven by money in the first place.”

In the non-religious homeschooler interviews, the idea of humans being a part of and being interconnected with nature came out quite strongly. Respondent 742 said, “I don’t even like that sort of dualistic way of seeing nature as something separate and us as being something separate from nature. I think that is one of the root causes of all of the trouble we are having.” There was a sense that nature itself will be okay in the long term but the impact on humans and future generations could be devastating. The idea of the need for balance, balancing the needs of humans and also the needs of other species was

voiced multiple times. As Respondent 614 said, “we are part of the whole system” and this is a closed system that can only sustain so much consumption by humans.

Most interviewees expressed knowledge and concern about the human impact on the natural environment. As one person put it, “such appalling treatment of something that sustains us” (R771). There was an attitude expressed by several respondents that even though humans are part of nature, it is our species that is “making a mess” and that we do not have the knowledge to control or fix the damage that we are doing. The theme of nature’s resilience also appeared in the interviews. Respondent 507 commented how “humans are just a tiny blip on our planet’s history” and “the planet will continue without us.” There was concern expressed about the level of consumption by humans and that although nature may survive, the human race may not be able to live “within the boundaries of what the earth can provide” (R614). However, there was always a hopeful, optimistic tone about the interviews and a sense that each person truly wanted to do their best to live well.

Discussion

The results from the survey and the interviews did not support the original hypothesis that homeschoolers would have stronger environmental attitudes than public schoolers. However, it was discovered that religiosity is an important mediating factor. Once it was taken into consideration, it became clear that homeschoolers fall into two camps, both of which do differ from public schoolers in terms of environmental attitudes. The average score of all the homeschoolers together masked the greater variance that existed when the variable of religiosity was included in the analysis. Results suggested

that religious homeschoolers had a weaker adherence to the New Ecological Paradigm when compared with the not-as-religious homeschoolers and with public schoolers. A continuum was observed with not-as-religious homeschoolers having the strongest environmental attitudes, followed by public schoolers, and then by religious homeschoolers. Among the public schoolers, any divisions by religiosity were not significant.

Overall, the mean NEP score of this study (3.54) was similar to a 2006 study with a representative sample of Canadians (average score of 3.67) (McFarlane, Stumpf-Allen, & Watson, 2006). The NEP mean of public schoolers (3.76) was comparable to representative studies in Canada which ranged from 3.67 to 3.93 (see Table 3 in Chapter 2). Not-as-religious homeschoolers in this study (mean of 4.09) scored higher than a study of environmentalists in Ontario (mean of 4.04) (Steger, Pierce, Steel, & Lovrich, 1989) but lower than environmentalists in British Columbia (mean of 4.63) (Edgell & Nowell, 1989). Though religious homeschoolers had a fairly low NEP mean score (3.17), they still had a higher mean score than a sample of Canadian fishers who scored a mean of 2.63 (Edgell & Nowell, 1989). The study of the fishers could be considered a non-environmental sample so it is interesting that the non-religious homeschoolers, while still lower than the general public, were not as low as people engaged in a consumptive unsustainable industry. These comparison studies are quite dated now and new studies are needed. With changes over the years, particularly in the fishing industry, there could be shifts in environmental attitudes that would be insightful.

The connectedness to nature scale scores fell along the same continuum as the NEP scores: not-as-religious homeschoolers had the strongest feeling of connectedness,

religious homeschoolers had the weakest and public schoolers came in the middle. The not-as-religious homeschoolers scored higher than environmental studies students in Mayer and Frantz's (2004) study (mean scores of 4.16 compared to 3.82). Religious homeschoolers scored very similarly to math students in the Mayer and Frantz (2004) study (mean of 3.19 compared to 3.20) (p. 509).

The survey seemed to have tapped into a sample that feels quite connected to nature. However, the interview results highlighted that this feeling of connection did not necessarily correspond with environmental concern. This perhaps gives credence to the contention that the NEP and CNS scales are measuring different attitudes.

Conclusion

The results of this study lend credence to the division between ideologues and pedagogues in Canadian homeschoolers and suggest that these two sub-groups differ not only in homeschooling motivation but also in their attitudes toward the environment. And yet, there is also agreement between the two groups in terms of respect for nature and enjoyment of the outdoors. Both groups have chosen to step outside of the mainstream in an attempt to do their best for the children and families and this extends to caring for nature in their own way. Although it is evident that religion plays a role and that religious homeschoolers are not as strongly subscribed to the New Ecological Paradigm, the qualitative and quantitative results illustrate a sample that is concerned about nature in general.

Chapter 6: Influence of Religion on Environmental Attitudes

Analyzing the data gathered from an internet survey of more than 700 homeschooling and public schooling respondents, it became evident that religion and importance of religion were significant factors relating to environmental attitudes. When it was found that homeschoolers as a whole scored lower on the environmental attitude scales than public schoolers, the data was dichotomized into highly religious homeschoolers and not-as-religious homeschoolers. This allowed a clearer picture to emerge. Importance of religion interacted significantly with mean scores on both the New Ecological Paradigm Scale and the Connectedness to Nature Scale, whereas other demographic variables did not have an influence. Qualitative data reinforced the importance of religion in discussing environmental attitudes. This chapter reviews the literature and explores the quantitative and qualitative data collected for this study with regard to the influence of religion on environmental attitudes.

Religion and Homeschooling

In the United States, as found in 1996, 1999, and 2003 studies by Isenberg (2007), religious reasons are in the top three motivations for homeschooling (also see Grubb, 1998). Homeschooling in the United States was originally started among Christians in the late 1970s and early 1980s. Upset with what they felt was a lack of religious education in schools, many Christians banded together at that time to form their own

schools (Arai, 2000). However, the schools often folded due to lack of resources or theological disagreements, at which point the parents often chose to homeschool.

Christian homeschoolers are considered ideologues because their focus is on imparting specific values and skills to their children, as opposed to pedagogues who are more focused on child-centred learning (Stevens, 2001; Van Galen, 1988). Religious homeschoolers are generally categorized as right wing and there is a correlation with more right-wing political beliefs; they are also sometimes referred to as heaven based (Gaither, 2008a, 2008b).

In comparison to the large number of religious-based homeschools in the US, a Canadian study by Arai (2000) does not find that religion plays a major role in deciding to homeschool. In his qualitative study of twenty-three homeschooling families, including discussions with homeschool organizations and attendance at homeschooling conferences, Arai (2000) concludes that great diversity exists within this movement, in income, education and motivation. He observes that even for those homeschoolers who are religious, their religion is not a major motivation in their decision to homeschool. Brabant, Bourdon and Jutras (2003) come to a similar conclusion in their survey of 203 Quebec families, where religious reasons are only infrequently given as the motivation for homeschooling, though the unique context of this province undoubtedly has an influence. In Priesnitz's (1990) earlier study, 25% of sampled Canadian homeschoolers report homeschooling mainly for religious reasons, and a further 22% report having no religious beliefs. Arai (2000) argues that motivations may be changing as more and more Canadian families choose this alternative educational model.

Religion and Environmental Attitudes

The influence of religion as a significant cultural force on people's attitudes toward the environment is an important research question that deserves more attention within Canada. As Haluza-DeLay, Kowalsky and Parkins (2009) conclude, "this research area is ripe for expansion in Canada" as Canadian literature is extremely limited (p. 108).

Within a North American context, Lynn White Jr.'s (1967) seminal paper is often the starting place for examining how religion influences environmental attitudes. White's thesis is that Christian dogma is at the heart of Western attitudes toward nature, whether we consider ourselves Christian or not. This dogma asserts that humans are not part of nature, but are in fact superior to nature and rightful masters of nature's bounty. The passage in the Bible that is most often referred to appears in Genesis: "And God blessed them and God said unto them, be fruitful and multiply, and replenish the earth, and subdue it and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth on the earth" (Genesis 1:28). White (1967) places the blame for our ecological crisis squarely on this Christian ethic of dominion, responsible for deep seated attitudes about the relationship between nature and humans. He concludes that we will never solve our ecological crisis until these underlying attitudes are replaced with an alternative view of equality for all beings (White, Jr., 1967).

Subsequent studies have attempted to test White's thesis quantitatively, most focused on the United States, with mixed results. Hand and Van Liere (2001) conduct a mail survey in Washington State to determine whether the mastery-over-nature perspective persists in the US. They conclude that White was perhaps too sweeping in his

judgement and that in fact there is a diversity of viewpoints within the Judeo-Christian tradition. In their survey, two items from the New Environmental Paradigm scale are utilized to measure the mastery-over-nature ethic: 'Mankind was created to rule over nature' and 'Plants and animals exist primarily to be used by humans' (both of these have been changed somewhat in the updated scale). Higher commitment to the mastery-over-nature idea is associated with lower environmental concern, measured through a variety of scales having to do with pollution, population, spending, and regulation. Hand and Van Liere (2001) caution that the continuing mastery-over-nature ethic "may have real consequences for the progress of environmental reform" (p. 568).

A key point is that the correlation between religion and lower environmental attitudes is not found to be equal for all denominations. More conservative denominations such as Baptists, Mormons and Sect groups have a negative correlation between religious commitment and environmental concern (Hand & Van Liere, 2001). The fundamentalist tradition is linked with lower environmental concern (Boyd, 1999). Guth et al. (1995; 1993) find that the least concerned about environmental issues are evangelical Christians, characterized by biblical literalism, end-times thinking, and high supernaturalism. One study goes so far as to characterize environmental attitudes in fundamentalists as almost hostile (Eckberg & Blocker, 1989).

More liberal denominations, such as Episcopalians and Lutherans, exhibit positive correlations between religious commitment and environmental concern (Hand & Van Liere, 2001). Eckberg and Blocker (1989) also note that this effect appears more strongly among nonconservative denominations. They define religious liberals as "active in nonfundamentalist churches and other religious organizations, tend to be nonliteralists in

the Bible, to favour free thinking, and to be culturally and religiously non-traditional” (Eckberg & Blocker, 1996, p. 353). It is this portion of religious society that tends to be more engaged in environmental concerns.

Other measures related to religion have shown links with environmental concern. Hand and Van Liere (2001) use church attendance as a measure of religious commitment, finding that, in general, greater church attendance was associated with lower level of environmental concern. Environmental concern correlates negatively with a range of orthodox Christian beliefs; however, church participation has a slight positive correlation with environmental concern. Church-going Christians may have more of an inclination to become involved or have an ethic of responsibility (Eckberg & Blocker, 1989).

Eckberg and Blocker (1989), through a telephone survey in Oklahoma, asking about religious affiliation, importance of religion, literal belief in the Bible and a variety of questions on environmental concern, show that the only significant predictor of environmental concern is literal belief in the Bible. Literal belief in the Bible also correlates strongly with importance of religion (Guth, Kellstedt, Smidt, & Green, 1993). Biblical literalism is a key variable, tied strongly to an anthropocentric view of creation (Hand & Van Liere, 2001). Studies correlating various measures of environmental attitudes and action with religious membership, strength of belief, church participation and other background measures show links between lower environmental concern and negative attitudes toward evolution (Eckberg & Blocker, 1996).

Guth et al. (1993), through surveying activists from religious groups, examine the intersection of religion with demographic and political variables. Demographic variables do not play a strong role but there is a significant effect on environmental concern from

political ideological variables, with more conservative respondents scoring lower on environmental attitudes.

Not all are in agreement about the link between lower environmental concern and religious faith. Greeley (1993) finds little relationship between religion and environmental concern, suggesting that the link is more with moral rigidity. Dekker, Ester and Nas (1997) argue that the link between religious beliefs and environmental concern is too tenuous to call conclusive and wonder if society has progressed beyond such influence of Christianity, given our modern industrialized lifestyle. Sherkat and Ellison (2007) in a more recent study, point out that both of the constructs of religion and environmental attitudes have diverse and varied perspectives and interpretations. They recommend making use of more concrete measures and conclude that, at least, religion informs and interacts with environmental beliefs. Hitzhusen (2007) criticizes the earlier studies, pointing out that, "The notable rise of Jewish and Christian environmental literatures, organizations, and doctrines over the past 35 years also weighs against the suggestion that biblical beliefs are antithetical to environmental progress" (p. 57).

Whether the Judeo Christian tradition encourages or discourages environmental concern may also depend on which part of the Bible is emphasized. Wolkomir et al. (1997) conclude through a series of regression analyses that substantive belief in dominionism is the more meaningful determinant of environmental concern as it underlies biblical literalism. However, more liberal denominations are less likely to emphasize domination of nature and instead are more oriented toward a stewardship ethic (Biel & Nilsson, 2005). There are parts of the Bible that have been interpreted such that humans have a responsibility to protect the earth, including Noah saving all the species

from the floods (Genesis 7:2-3) and Psalms (24:1, 50:10-12): "The earth is the Lord's and the fullness thereof: the world and they that dwell therein...For every beast of the forest is mine, and the cattle upon a thousand hills. I know all the fowls of the mountains: and the wild beasts of the field are mine...the world is mine and the fullness thereof." A sense of responsibility may not be mutually exclusive of the idea of dominion, but it does suggest an ethic of ensuring the survival of nature, if only for future generations. Hizhusen (2007) also points out that "mastery and dominion attitudes do not necessarily equate with poor environment behaviour" (p. 60), an assertion that will require more study. Hand and Van Liere (2001) conclude that there is reason to be more optimistic than White (1967) as there is a possibility that within the Christian tradition there may be influential attitudes that can be harmonious with our need to live sustainably.

The overall conclusion that can be drawn from the literature is that the influence of religion is incredibly complex with many different variables and many different factors. In that case, Lynn White Jr.'s (1967) thesis may be too simplistic. Many studies struggle with how to measure the vague concept of religion meaningfully, often falling back on church attendance and denomination. Clearly, biblical literalism and fundamentalism are most strongly correlated with lower environmental concern and demographic factors consistently have no influence. However, the picture is blurred when variables of political orientation are taken into account, with a bit of the chicken and the egg problem. For example, Greely (1993) argues that religious influences are a reflection of political conservatism, whereas Guth et al. (1995) allege it is the other way around, with religious conservatism motivating political conservatism. However, Boyd (1999) concludes from her data that fundamentalism does not necessarily equate to

politically conservative. In general then, it seems fair to conclude that theology is intertwined with politics and most studies recommend more research into how each influences environmental attitudes. Definitely, the literature suggests the variables that constitute religious attitudes are worth exploring in a study of environmental attitudes and researchers should also take caution not to overgeneralize results, given the complexity of the constructs.

Survey Results

In terms of religion, the current survey showed 39% of the sample identified as Christian (encompassing Protestant, Baptist, Anglican, United and Catholic), and a further 22% as a Fundamentalist Christian (including Evangelical, Latter-day Saints, Mennonite and Pentecostal). Also, 11% identified as Agnostic and 10% as Atheist (Figure 3). More homeschoolers identified as Fundamentalist Christians (28%) than public schoolers (6%).

Religion was rated as strongly important in their lives by 57% of respondents and more homeschoolers rated religion as strongly important (67%) than public schoolers (27%) (Figure 4). Within homeschoolers, 88% of Christians indicated religion was strongly important in their lives, compared to 30% of Christian public schoolers. Almost all Fundamentalist Christian homeschoolers (97%) said religion was strongly important in their lives, compared to 56% in the public schooling category. Unfortunately, there were no questions regarding biblical literalism in this survey. In general, results suggested that the homeschoolers had a much higher level of religiosity than public school respondents.

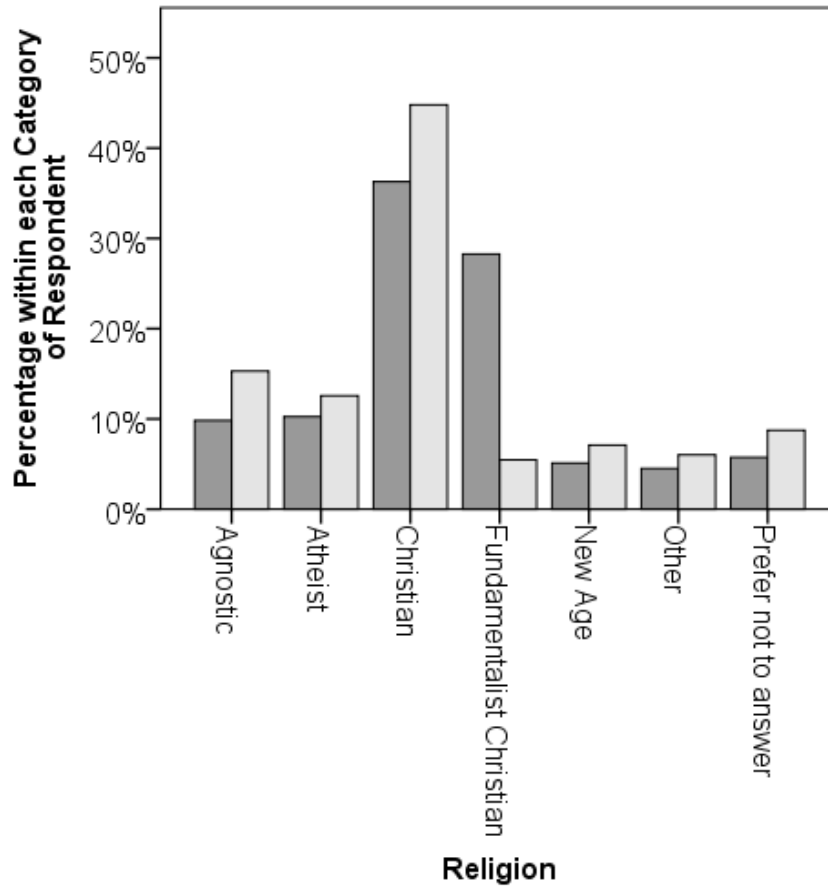


Figure 3: Comparison of Religious Denomination in Homeschoolers (n = 523) and Public Schoolers (n = 190). The dark grey bars represent responses of homeschoolers and the pale grey bars represent responses of public schoolers in the internet survey on environmental attitudes.

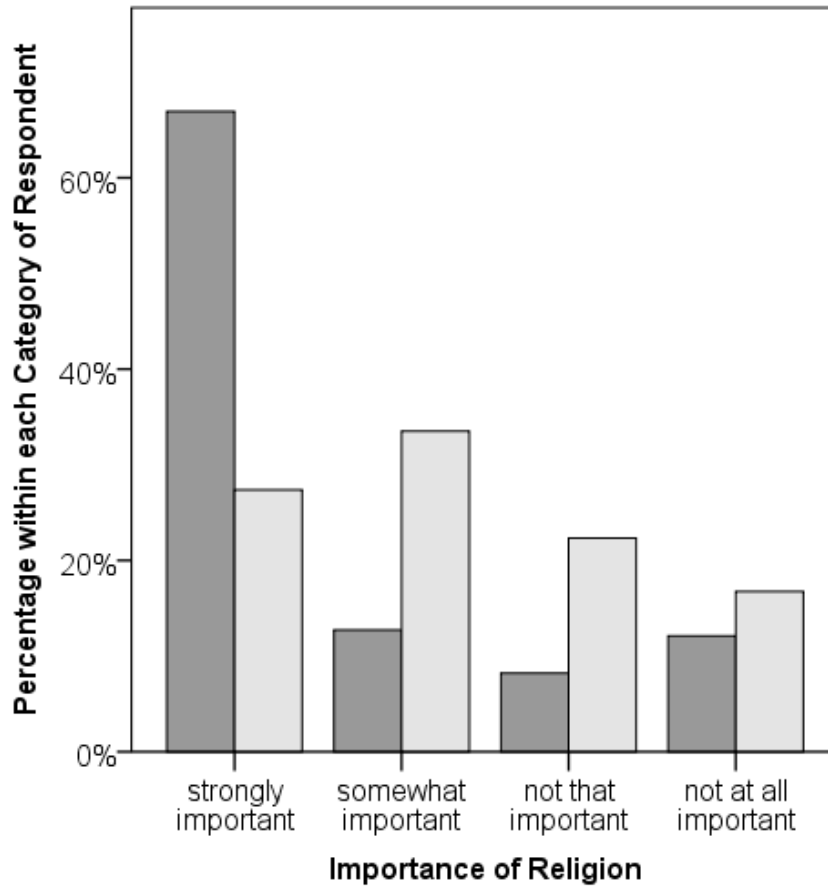


Figure 4: Importance of Religion for Homeschoolers (n = 523) and Public Schoolers (n = 190). The dark grey bars represent responses of homeschoolers and the pale grey bars represent responses of public schoolers in the internet survey on environmental attitudes.

New Ecological Paradigm

As was shown in Chapter 4, importance of religion emerged as a significant factor influencing the score on the New Ecological Paradigm (NEP) scale. These results are now explored in greater depth. Within homeschoolers, an ANOVA with post-hoc Games-Howell tests revealed that Christian and Fundamentalist Christian denominations had significantly different mean NEP scores from all other denominations and from each

other ($F_{(6, 486)} = 42.69$, $p < 0.001$) (Table 14). These two denominations scored significantly lower with means of 3.24 for Christians and 2.99 for Fundamentalist Christians. Within public schoolers, Christians scored significantly lower than Atheists and Agnostics ($F_{(6, 182)} = 4.028$, $p = 0.001$) but no other significant differences were found (Figure 5).

Table 14: Mean New Ecological Paradigm score and standard error of the mean by religious denomination for homeschoolers and public schoolers

Denomination	Homeschoolers		Public Schoolers	
	Mean Environmental Attitude Score (SE)	<i>n</i>	Mean Environmental Attitude Score (SE)	<i>n</i>
Agnostic	4.14 (0.056)	47	3.99 (0.083)	28
Atheist	4.17 (0.081)	50	4.10 (0.120)	23
Christian	3.24 (0.055)	177	3.62 (0.069)	82
Fundamentalist	2.99 (0.055)	138	3.78 (0.145)	10
New Age	4.14 (0.083)	25	4.03 (0.121)	13

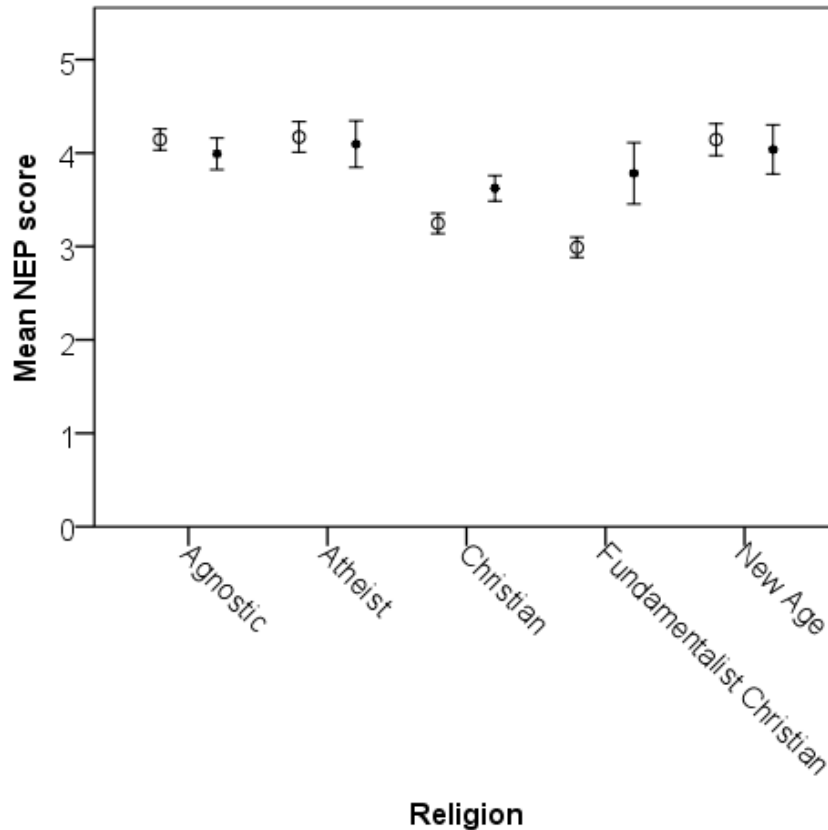


Figure 5: Mean New Ecological Paradigm score by religious denomination for homeschoolers and public schoolers. The open circles represent responses of homeschoolers and the closed circles represent responses of public schoolers in the internet survey on environmental attitudes. Error bars represent a confidence interval of 95%.

Mean score on the NEP was significantly different depending on whether the respondent was highly religious or not-as-religious ($F_{(2, 675)} = 121.46, p < 0.001$). Religious homeschoolers scored the lowest ($n = 326, M = 3.17, SE = 0.039$), public schoolers in the middle ($n = 190, M = 3.76, SE = 0.044$), and not-as-religious homeschoolers scored highest ($n = 160, M = 4.09, SE = 0.044$). To further explore the results, a series of ANOVAs was performed. Results showed that regarding mean NEP score, religious and not-as-religious public schoolers are not significantly different. However, religious and

not-as-religious homeschoolers do score significantly differently (Brown-Forsythe $F_{(1, 382)} = 240.4$, $p < 0.001$) with respective means of 3.17 ($SE = 0.039$) and 4.09 ($SE = 0.045$).

When mean NEP score was compared for religious homeschoolers and religious public schoolers, there was also a significant difference ($F_{(1, 374)} = 26.8$, $p < 0.001$) with respective means of 3.17 ($SE = 0.039$) and 3.72 ($SE = 0.038$). Not-as-religious homeschoolers and not-as-religious public schoolers also scored significantly differently ($F_{(1, 289)} = 19.46$, $p < 0.001$) with respective means of 4.09 ($SE = 0.045$) and 3.79 ($SE = 0.035$).

Regression analysis confirmed the significance of the variable religious or not-as-religious and the dummy variable of Fundamentalist Christian or not. Table 15 shows the results of the stepwise regression with the two variables. Importance of religion ($b = -.390$, $t_{(662)} = -10.58$, $p < 0.001$) and whether the respondent was a Fundamentalist Christian or not ($b = -.192$, $t_{(662)} = -5.22$, $p < 0.001$) were both significant predictors of mean NEP score. Importance of religion accounts for a significant proportion of variance in mean NEP scores, $r^2 = 0.219$ (21.9% of variance), $F\text{-ratio}_{(1, 663)} = 186.23$, $p < 0.001$. When the variable of fundamentalism was added, the proportion increased to 25% of the variance, $F\text{-ratio}_{(1, 662)} = 27.25$, $p < 0.001$. The same analysis was run on only the homeschooling portion of the sample and in that case the proportion of the variance accounted for by importance of religion increased to 30.1% with a change in r^2 of 0.280 when fundamentalism was added. These models suggest that fundamentalism, while significant, is not as important a predictor as importance of religion.

Table 15: Multiple Regression Results for Dependent Variable Mean New Ecological Paradigm Score

		<i>B</i>	Std. Error <i>B</i>	β
Step 1	Constant	3.955	0.039	
	Religious or Not	-0.715	0.052	-.468*
Step 2	Constant	3.964	0.039	
	Religious or Not	-0.595	0.056	-.390*
	Fundamentalist or Not	-0.352	0.067	-.192*
$r^2 = 0.219$ for Step 1, Change in $r^2 = 0.031$ for Step 2 ($p < 0.001$). * $p < 0.001$.				

Whether respondents adhere specifically to a dominionistic, mastery-over-nature sentiment can be explored by examining NEP items 2 and 12 (Hand & Van Liere, 2001). Item 2 (Humans have the right to modify the natural environment to suit their needs) found agreement from 48% of religious homeschoolers, 26% of not-as-religious homeschoolers and 35% of public schoolers. Among the various categories, Fundamentalist Christian homeschoolers with a mean of 2.76 ($SE = 0.11$) scored significantly lower than all others except for Christians ($F_{(6, 485)} = 7.62$, $p < 0.001$). Among public schoolers, there was no significant difference between denominations. On Item 12 (Humans were meant to rule over the rest of nature), Christians and Fundamentalist Christians scored significantly lower than all other denominations (but not different from each other) with respective means of 2.17 ($SE = 0.11$) and 1.80 ($SE = 0.11$) ($F_{(6, 485)} = 78.05$, $p < 0.001$). No significant differences were found in public schoolers. For these items, a low score suggests the respondents agree more strongly with the statements.

Connectedness to Nature Scale

Chapter 4 outlined the results on the Connectedness to Nature Scale (CNS) for religious homeschoolers ($M = 3.19$, $SE = 0.048$), not-as-religious homeschoolers ($M =$

4.16, $SE = 0.044$) and public schoolers ($M = 3.87$, $SE = 0.050$). In general, results followed the same pattern as NEP scores. These results are now explored in greater depth. Within homeschoolers, an ANOVA with post-hoc Games-Howell tests revealed that Christian and Fundamentalist Christian denominations are significantly different from all other denominations and from each other ($F_{(6, 478)} = 45.27$, $p < 0.001$). These two denominations scored significantly lower with means of 3.31 for Christians and 2.88 for Fundamentalist Christians. Within public schoolers, no significant differences were found among denominations.

A regression model was also run on CNS data, with very similar results as the NEP. The variable of homeschooling versus public schooling was not significant. Importance of religion was the best predictor of CNS score ($b = -.573$, $t_{(660)} = -8.87$, $p < 0.001$), accounting for 19% of the variance. Whether the respondent was a Fundamentalist Christian or not was also a significant predictor of mean CNS score ($b = -.554$, $t_{(660)} = -7.17$, $p < 0.001$), explaining a further 6% of the variance ($F\text{-ratio}_{(1, 660)} = 155.33$, $p < 0.001$).

Evidence for a mastery-over-nature orientation within the religious homeschoolers of this sample also came from examining CNS items 12 and 13; both had the highest levels of disagreement among the categories of respondent. Almost 66% religious homeschoolers agreed with item 12 (When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature), compared to less than 14% of not-as-religious homeschoolers and 31% of public schoolers. Variability among public schoolers was much less than among homeschoolers (Figure 6). Homeschooling Fundamentalist Christians scored the lowest on item 12. However, the difference was not

statistically significant from Fundamentalist public schoolers. On item 13 (I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees), 78% of religious homeschoolers disagreed, compared with 18% of not-as-religious homeschoolers and 23% of public schoolers (Figure 7). Fundamentalist and Christian homeschoolers scored significantly lower than their public schooling counterparts.

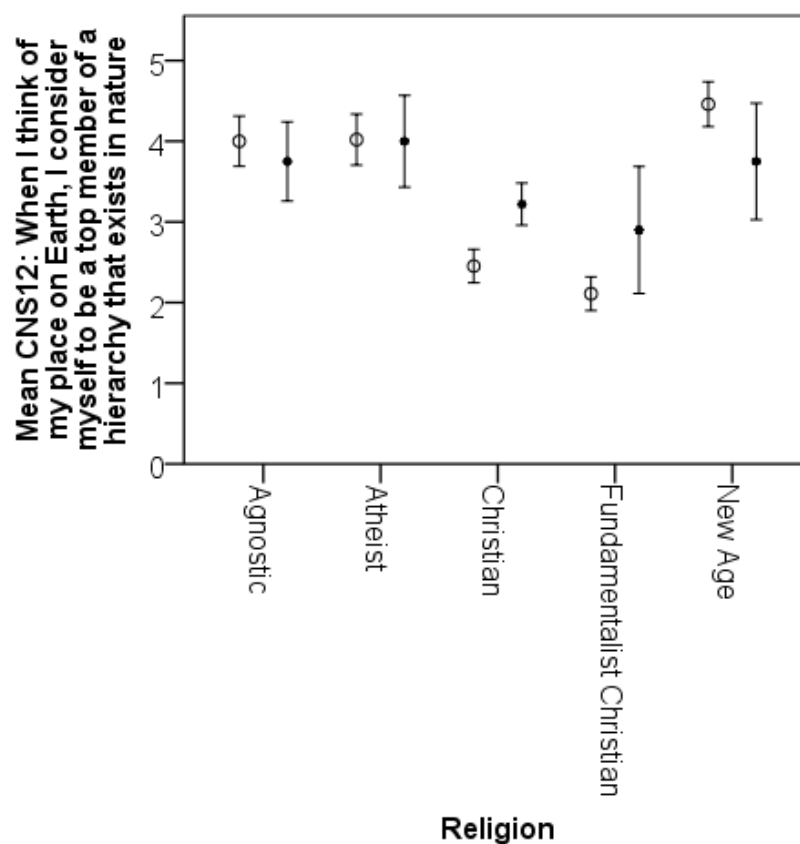


Figure 6: Mean score on item 12 of the Connectedness to Nature Scale by religion of respondent. The open circles represent responses of homeschoolers and the closed circles represent responses of public schoolers in the internet survey on environmental attitudes. Error bars represent a confidence interval of 95%.

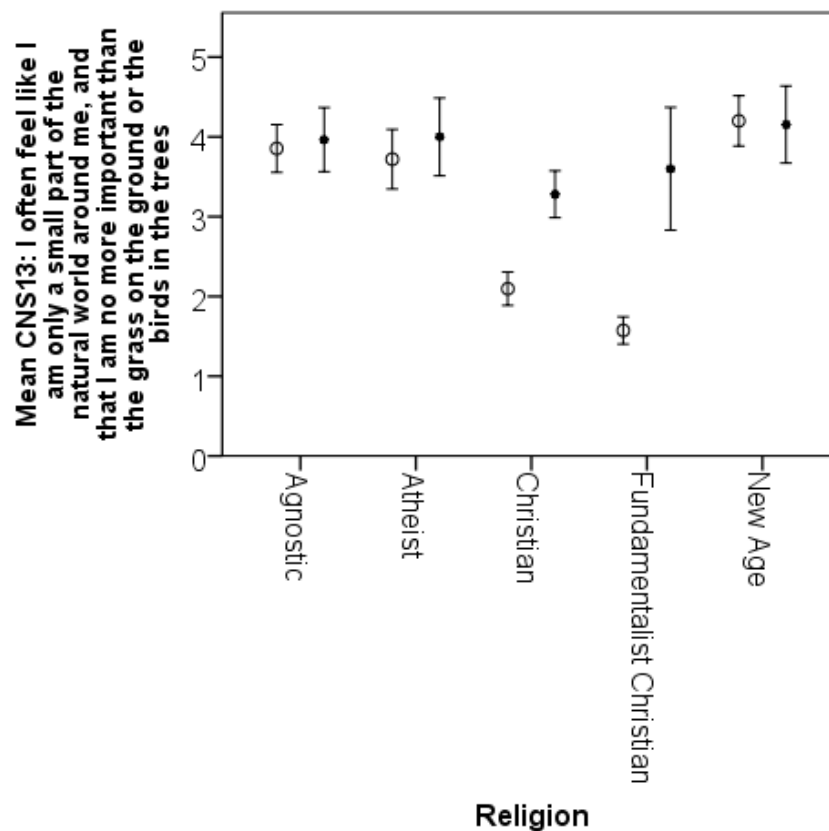


Figure 7: Mean score on item 13 of the Connectedness to Nature Scale by religion of respondent. The open circles represent responses of homeschoolers and the closed circles represent responses of public schoolers in the internet survey on environmental attitudes. Error bars represent a confidence interval of 95%.

Interview Results

Interview participants were asked what in their life had influenced their attitudes toward the environment. In this sample, religion was the third most commonly cited influence, with 35% mentioning it, all of them homeschoolers. Of the seven participants in this sample who named religion as an influence on their environmental values, four

self-identified as Protestant Christian and two as Fundamental Evangelical, all rating religion as strongly important in their lives. The remaining participant actually identified her Atheism as a source of influence, in that it had led her to realize that humans were simply part of nature, animals, and therefore not above the laws of nature. She said,

“It follows that if you think of us as evolved animals and smart animals rather than the children of God. If you are the children of God, then it is a whole different starting point for how you treat the world around you. If you think there is this big plan, this big planner in the sky who is working it all out and he wants this and that and I can pillage and plunder and take and it will never run out. That is how it has been up until recently; people thought that the resources would never be depleted. And so, as a person who thinks of us as animals and see that we are just multiplying and consuming in a way that is not sustainable, I want to do my part, I want to take responsibility.” (R507).

In others, their religion had led to a strong stewardship ethic; an idea that God had created the world for humans and so there is an associated responsibility to take care of it. One respondent was very clear about this responsibility, commenting, “I think the environment should be looked after the way God intended us to look after it. To be respectful of it. To live in harmony with it, not to be destroying it like we are (R531).” Another said, “I take a lot of my attitudes toward the environment from what God says. He says in Genesis that he created the world for man. Man was to tend it; that is what I

believe (R145).” With another respondent, that idea of stewardship was expressed but somewhat mixed in with a dominionistic viewpoint:

Well, as a Christian, I believe that God has made, put man in dominion over the earth and all the creatures therein, and there is a blessing and a curse with that. One is that we are free to use things as we see fit but at the same time, elsewhere in the Bible it tells us how we need to be good stewards of everything that we’re given and also that we are to do everything for God’s glory (R284).

On the other hand, some saw the idea from the Bible that humans had dominion over the Earth as a reason not to buy into environmental problems at all, believing that humans were simply living the way they were meant to. There were some elements of stewardship in this sentiment, mostly in terms of not being wasteful, but it did not lead to strong environmental concern. For example, one respondent said,

The Bible clearly tells us that God is going to judge this world, the world that we are sitting on right now and while it would be wrong to be wasteful and it would be wrong to be not caring for things in the sense of deliberately being harmful, on the other hand I don’t have to go to extraordinary measures to try to preserve what I see because that is not the future that I see happening (R146).

In this case, a literal belief in the Bible led to the belief that a “future judgement” will come to pass and therefore there is no need for concern. The respondent continued,

“God says that there will be a future judgement and he has described what that is - that this world is going to be burned up and pass away

and so, you know, that is kind of why I'm not too concerned about global warming or rising ocean levels or melting icebergs, or that kind of stuff..."(R146).

So, it is evident that even in the same religious faith, there are varying interpretations of the idea of dominion and whether it includes stewardship.

Discussion

The original hypothesis for this study was that homeschoolers would score higher on the environmental attitude scales than public schoolers. When this was found not to be supported, a deeper look at the data was necessary. It was discovered that religion and importance of religion played a much stronger role than anticipated in influencing the environmental attitude scores of respondents. Based on a review of the literature, it was hypothesized that highly religious respondents would score significantly lower on the environmental attitude scales, which was supported by the data.

In Canada, the research on homeschoolers is sparse and whether religion plays a major role in the motivation to homeschool in this country is still uncertain. The current study's sample was dichotomized into highly religious homeschoolers and not-as-religious homeschoolers. Both groups cited the importance of individualized learning and the desire for more parent-child contact as motivations for homeschooling, but the majority of the more religious homeschoolers chose the ability to teach particular beliefs and values as their primary motivation. These results are consistent with portraits of American Christian homeschoolers (Kunzman, 2009; Mayberry, Knowles, Ray, & Marlow, 1995; Stevens, 2001). A smaller percentage of Priesnitz's (1990) sample (25%)

cited religion as a motivation for homeschooling. That religious motivation seems to be stronger in the current sample shows that Arai's (2000) hypothesis that the motivations for homeschooling are changing over time may not be supported.

In terms of the influence of religion on environmental attitudes, results showed that Christian and Fundamentalist Christian denominations had weaker attitudes as measured by the scales used than all other denominations and from each other. These results are comparable to other studies where Christians were found to score lower on the NEP scale (Casey & Scott, 2006; Hand & Van Liere, 2001; Peterson & Liu, 2008). Denomination and fundamentalism in this study were not as important factors as the importance of religion to the respondent. The variables are linked though, confirming results from the literature (Boyd, 1999; Guth, Green, Kellstedt, & Smidt, 1995). The current study revealed that environmental attitudes seem to exist in a continuum from low scoring religious homeschoolers, through religious public schoolers, not-as-religious public schoolers, and finally, high scoring not-as-religious homeschoolers. When examined in this manner, the homeschoolers present as extremes on opposite ends of the spectrum, a result which was hidden by the initial average score of all homeschoolers. These results show that the variables of religion and religiosity are important to include in any study of homeschooling but are also valuable in research on environmental attitudes as they interact with how respondents score on the scales.

Significant results were found on certain items of the NEP having to do with the place of humans in the hierarchy of other beings, which tie strongly to a dominionistic interpretation of the Bible. Results suggest that Christian and Fundamentalist Christian homeschoolers are more committed to the dominance over nature doctrine, supporting

Lynn White Jr.'s thesis (White, Jr., 1967). Those who were in agreement with these mastery-over-nature items also had a lower overall environmental attitude score. Similar results are found in Casey and Scott (2006) and Hand and Van Liere (2001), who conclude that "some organized religious groups are implicated in the continuing salience of the mastery-over-nature orientation" (p.568). Peterson and Liu (2008) found that Mormons also score lowest on item 12 of the NEP scale. The results from the current study corroborate the literature that finds highly religious people score lower on the NEP scale, indicating a lower level of environmental concern.

The NEP results are substantiated by those on the CNS scale. Significant differences suggested that a dominionistic environmental attitude was more prevalent in religious homeschoolers. In general, religious homeschoolers scored the lowest on the CNS scale, suggesting that they strongly believed in a separation between humans and nature, which also lends credence to the White (1967) thesis for this sample. These quantitative results were strengthened by the qualitative interview results which also suggested that religious respondents believed strongly in a hierarchy in nature, with humans at the top. In this sample, then, the dogma of mastery-over-nature was still strong.

In general, the interview results showed the importance of religion regarding environmental attitudes. Religion was the third most commonly cited influence, with more than a third of the sample mentioning it, all of them homeschoolers. This is a high percentage when compared with other studies asking a similar question. Religion was not a category at all in Peterson (1982), Sward (1999), or Tanner (1980). In Palmer (1993),

religion was only mentioned by 6% of respondents, and in Chawla (1998)

religion/principles were mentioned by 15% of respondents.

For the current study, it is important to note that not all of the religious respondents expressed strong environmental concern. So, although in the current sample religion was cited as an influence, it is important not to generalize that it was a positive influence on concern. For some respondents, it seemed to allow a stronger dominionistic attitude which led to a shallower level of concern while for others it allowed them to have no concern at all about environmental issues, as in the case of the respondent who believed in the rapture.

The qualitative data supported the quantitative data that highly religious people seemed to have less concern about environmental problems. Although de Groot and van den Born (2007) assert that a stewardship ethic is prevalent among Canadians, within the current study's sample, the mastery-over-nature ethic was more common. Many of the highly religious interview participants mentioned that humans were 'above' animals and they did not believe that animals had rights. Some expressed a stewardship ethic that was motivated by taking care of God's creation. The majority expressed strong disbelief in climate change. Two of the non-religious interview participants mentioned knowing other homeschoolers who were religious and their belief is that the religious homeschooling community does not share the environmental concern that appears in their own homeschooling communities.

Environmental attitudes must be examined in context of the respondents' overall philosophy, particularly around how they see their place in nature. In some cases, a stewardship ethic was part of a religious philosophy, but not always. This ongoing

prevalence of mastery-over-nature attitudes has important consequences for environmental concern as most environmental education and communication includes an underlying bias toward the intrinsic value of value. These messages may need to be revisited if we are to communicate more effectively with those holding literal belief in the Bible. These religious beliefs touch every other aspect of life and so may override other influences that are important such as time outside in nature. It is also unknown how these beliefs are being passed down to the next generation. With some choosing to homeschool to ensure that their particular beliefs are passed down, perhaps public school is of benefit to environmental attitudes in some cases. It is evident that future research on homeschooling and environmental attitudes in Canada would be well advised to include questions on religion and religiosity.

Conclusion

Both the qualitative and quantitative results from this study tended to support the literature showing a lower environmental concern in highly religious people. These results tie into Lynn White's thesis of Christian emphasis on mastery-over-nature and a dominionistic ethic. Qualitative evidence also showed, however, that a stewardship ethic was present, sometimes alongside a dominionistic mindset. The key was that there were different interpretations of the Bible, even in the same religion. How important their religion was in their life seemed to be the most important variable affecting environmental concern, which might be tied into Biblical literalism. There were definitely two distinct communities of homeschoolers distinguished by their religious beliefs and having different environmental attitudes. More investigation of the ecological

worldviews of homeschoolers could help us shed light on how deep seated values of religion are still a strong influence on environmental attitudes. The mastery-over-nature worldview obviously has continuing salience among this portion of society and future study on environmental attitudes may want to ensure to include some variables on religiosity. Continuing to explore these variables may help us to understand how environmental educators can better communicate with this segment of the population. Whether the religious right movement is growing in Canada and their influence on our government, and in particular environmental policy, is debateable but perhaps worthy of more study.

Chapter 7: Educational Philosophy, Religion, and Environmental Attitudes

The results from this study have shown that importance of religion in a respondent's life is a significant factor in how they responded to questions on environmental attitudes. Religious homeschoolers in particular stand out as having a weaker level of environmental concern as measured by the scales utilized. In this chapter, religion also plays a strong role as the other factors of educational philosophy and structure of homeschooling are brought into the analysis. This portion of the study explores the interactions between these variables and how they may connect to environmental attitudes.

Philosophies of Education

Education stems from the Latin *educere*, "to lead," and the goals and purposes of education have changed over time and are still evolving, including questions of curriculum, methods, knowledge acquisition, standards, evaluation and responsibilities—all in an effort to fulfill individual and societal needs (Dunn, 2005). Education is generally acknowledged as a social process that can take place in any number of ways and locations, including but not limited to schools (Dunn, 2005). Though parents may not have a conscious educational philosophy *per se*, they generally have thoughts on the goals of education, including how and what their children should be taught. Each

person's philosophy of education will influence the way they approach education and the way that they react to their own children's education. The scope of this research only allows a brief review of the various philosophies of education; however, see Dunn (2005) for a comprehensive overview.

Dunn (2005) outlines the major educational philosophies and associated educational theories. Perennialism and essentialism are similar and are both based on philosophies of idealism and realism. These theories rest on a belief that there are universal truths and unchanging values that should be transmitted to children with the goal of helping children reach their intellectual potential (Dunn, 2005). This philosophy is expressed as a 'back to basics' approach and can also be seen in the current No Child Left Behind movement in the United States (Saylan & Blumstein, 2011). In this approach, the emphasis is on the individual and the basic goal of education is to instil the fundamentals of academic knowledge in a teacher-centred fashion, with discipline and testing being of high value (Dunn, 2005).

Progressivism and constructivism educational theories are based on the philosophy of pragmatism. These theories recognize that values change and evolve as society changes and views humans as problem solvers with no universal truths; individuals construct their knowledge based on their social experience (Dunn, 2005). For these theories, the ultimate goal of education is the betterment of society. Adherents to these theories may favour a flexible and cooperative curriculum that is child-centred with the teacher acting as a facilitator. The emphasis is on learning how to problem solve and how to think critically. Holmes (1998) argues that the Canadian public school system emphasizes a progressive philosophy, perhaps more so at the elementary level. As he

points out, critics of this theory of education believe that it will lead to a lack of respect for authority and that children will miss out on essential knowledge (Holmes, 1998). Critics also complain that the curriculum is watered down with no common expectations or outcomes (Dunn, 2005).

There is a lack of literature examining the educational philosophy of homeschooling families in Canada in a formal sense. Anecdotal examining of popularized homeschooling books such as Holt (1981) and Llewellyn (1998) would suggest that many pedagogic homeschooling families favour a more child-centred approach, falling into the progressive/constructivist educational philosophy. In contrast, a study by Kunzman (2009) suggests that more religious homeschoolers in the United States favour a parent-led type of homeschooling, "reflecting their belief that human nature is inherently sinful and in need of regular guidance and correction, particularly during childhood" (p. 6). Thus, they may favour an essentialist philosophy. Christian homeschoolers have a goal of teaching their children values that reflect their own. Not-as-religious homeschoolers are more concerned with allowing the child to develop his or her own value system, in accordance with their belief that children are inherently good (Stevens, 2001).

Structure of Homeschooling

The structure of homeschooling may relate to the educational philosophy of the homeschooling parents. Methods of homeschooling are described as a continuum, on one end of which is unstructured child-directed un-schooling or free-schooling (Holt, 1969; Pink, 2001), and on the other end is formal curriculum following a rigid structure (Taylor,

1997; Van Galen, 1988). With ‘free schooling’ or ‘un-schooling,’ parents, as described in Pink (2001), “simply put [children] in nurturing situations and let them learn on their own,” (p. 31) as compared to very formal homeschools, using a rigid structure and commercially prepared curriculum materials, generally seen in more religious families (Taylor, 1997; Van Galen, 1988). The more structured style seen in strongly religious homeschooling families is related to their fundamental belief in hierarchy, based on Biblical direction that it is the parents’ duty to lead the children (Kunzman, 2009).

According to the literature, most families seem to fall somewhere in the middle, completing some curriculum but also allowing a lot of flexibility and room for children to follow their own interests (Lines, 1998; Long, 2001; Lyman, 1993; Pawlas, 2001). Van Galen (1988) also finds that over time, families following set curricula tend to shift into a more unstructured learning style as they learn more about what works for their children.

Survey Results: Educational Philosophy

Within the current study’s survey, participants were asked to rank a series of four statements, each corresponding to a particular educational philosophy. The respondents were asked to choose the rank of 1 for the statement that was the best match to their thinking, 2 for the next best match, 3 for the next best match, and 4 for the statement that was the least like their thinking. Table 16 shows the percentages of how respondents in this study ranked each statement. The statement that the goal of education should be learning to become thoughtful productive citizens through democratic project-based classrooms that emphasize interdisciplinary subject matter in a way that follows the child’s interests was coded as progressivism. The statement that the goal of education

should be to allow the child to develop his or her own knowledge and steer his or her own personal development through diverse educational interactions and by reflecting on his or her actions and experiences with teacher acting as a facilitator of this process was coded as constructivism. These options are both child-centred. The statement that the goal of education should be cultivation of the intellect through the acquisition of knowledge about the great ideas of western culture in subjects such as arts and literature was coded as perennialism. The statement that the goal of education should be the transmission of intellectual and moral standards in a back-to-basics movement that emphasizes facts and essential skills through hard work respect for authority and discipline was coded as essentialism.

Allowing a ranking acknowledged that people's ideas of educational philosophy might overlap categories. Almost half of the sample ranked the statement coded as constructivism as 1, meaning the most like their thinking. The statement coded as essentialism was ranked as 1 by 28% of the sample. The least popular was the statement coded as perennialism, with only 9% ranking this number 1. Just over 40% of the sample chose progressivism as their second choice.

Table 16: Respondents' Ranking of Statements Representing Educational Philosophies (Percentage)

Philosophy represented by statement	Rank*			
	1 (%)	2 (%)	3 (%)	4 (%)
Perennialism	9.1	20.1	38.2	32.6
Essentialism	28.3	18.5	18.8	34
Progressivism	15.2	40.5	25.8	18.5
Constructivism	48.5	22.3	15.4	13.9
<i>n</i> = 713; *(1=best match to respondents' thinking; 4=least like respondents' thinking)				

A one-way ANOVA determined that educational philosophy had a significant effect on mean environmental attitude score ($F_{(3, 656)} = 66.298$, $p < 0.001$), with a moderate effect size ($r = 0.48$). A post-hoc Games-Howell test shows that the mean environmental attitude score for respondents who chose progressivism as their primary educational philosophy ($n = 101$, $M = 3.80$, $SE = 0.035$) and those who chose constructivism ($n = 322$, $M = 3.84$, $SE = 0.345$) were not significantly different. The mean environmental attitude score for respondents who chose perennialism ($n = 60$, $M = 3.44$, $SE = 0.099$) and those who chose essentialism ($n = 188$, $M = 3.02$, $SE = 0.052$) were both significantly lower than the other groups ($p < 0.05$). So, it can be seen that the respondents who chose the more child-centred educational philosophies scored significantly higher on the environmental attitude scales than those who chose a more 'back-to-basics' approach.

A significant association was found between the choice of primary educational philosophy and the respondent's answer regarding importance of religion in their life ($\chi^2_{(9)} = 114.897$, $p < 0.001$) with $n = 650$, Cramer's $V = 0.243$, $p < 0.001$. Of respondents who rated religion as highly important, 44% of them also chose essentialism as their educational philosophy.

Examining data from those who chose essentialism as their primary educational philosophy, 88% had also reported that religion was strongly important to them (standardized residual was 5.7 therefore this is significant at $p < 0.001$), 6% said religion was somewhat important ($z = -3.9$), 2.7% said not that important ($z = -3.6$) and 3.3% said not at all important ($z = -3.7$). These results showed that more people than expected were highly religious in the essentialism category (Figure 8).

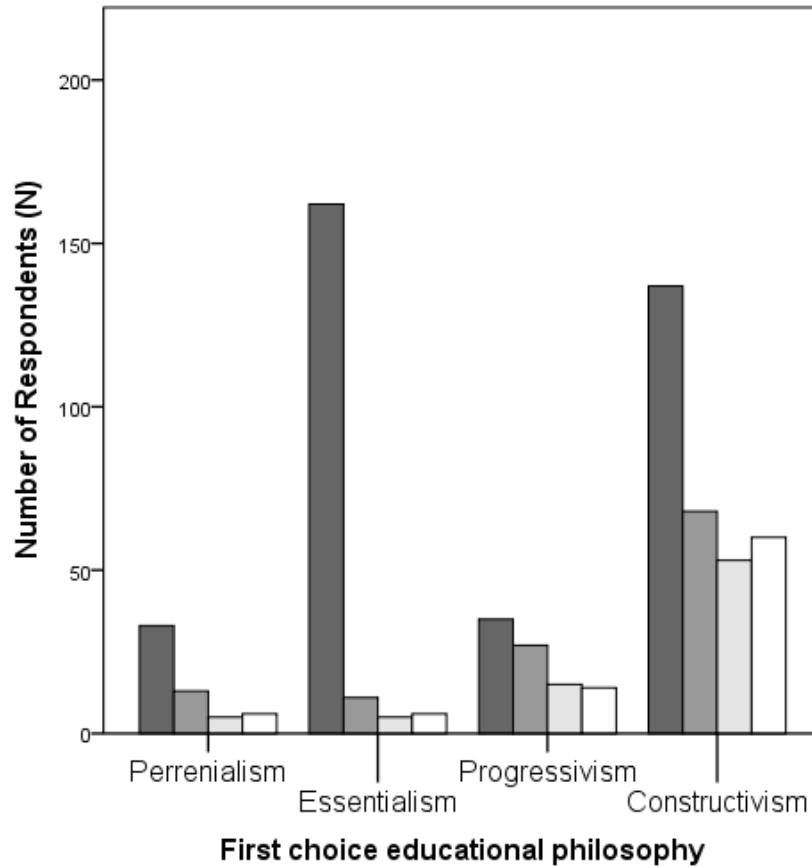


Figure 8: Number of respondents ranking category of educational philosophy as first choice, grouped by religiosity. The darkest grey bars indicate a response that religion was strongly important in the respondent's life. The next darkest bars indicate an answer of somewhat important. The pale grey bars represent an answer of not that important and the white bars not at all important. These responses were given in the internet survey on environmental attitudes.

There was a significant interaction between the variable of importance of religion and the variable of educational philosophy, with a small effect on mean environmental attitude score ($F_{(3, 642)} = 3.21, p = 0.023, \text{partial } \eta^2 = 0.015$) (Table 17). Table 18 shows the number of respondents (n), the mean (M) and standard error (SE) of the environmental attitude score for each type of educational philosophy categorized by religious and not-as-

religious respondent. Post-hoc analyses revealed that respondents who chose essentialism as a primary educational philosophy and rated religion as highly important in their lives had the lowest mean environmental attitude scores in this sample (Figure 9).

Table 17: Two-way Analysis of Variance for Mean Environmental Attitude Score as a Function of Importance of Religion and Educational Philosophy

Variable and source	df	Mean Square	F	Partial Eta Squared	Eta
Importance of Religion (Religious)	1	27.84	76.929**	0.107	0.327
Educational Philosophy (EduPhil)	3	5.24	14.476**	0.063	0.251
Religious*EduPhil	3	1.16	3.209*	0.015	0.122
Error	642	0.36			
*p<0.05, **p<0.001					

Table 18: Mean, Standard Error and n for Environmental Attitude Score as a Function of Importance of Religion and Educational Philosophy

Educational Philosophy	Highly Religious			Not-as-Religious			Total	
	<i>n</i>	<i>M</i>	<i>SE</i>	<i>n</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SD</i>
Perennialism	33	3.27	0.13	24	3.68	0.14	3.44	0.10
Essentialism	162	2.91	0.05	22	3.83	0.13	3.02	0.05
Progressivism	35	3.52	0.12	56	3.98	0.06	3.80	0.06
Constructivism	137	3.58	0.06	181	4.06	0.03	3.85	0.03
Total	367	3.25	0.04	283	3.99	0.03	3.57	0.03

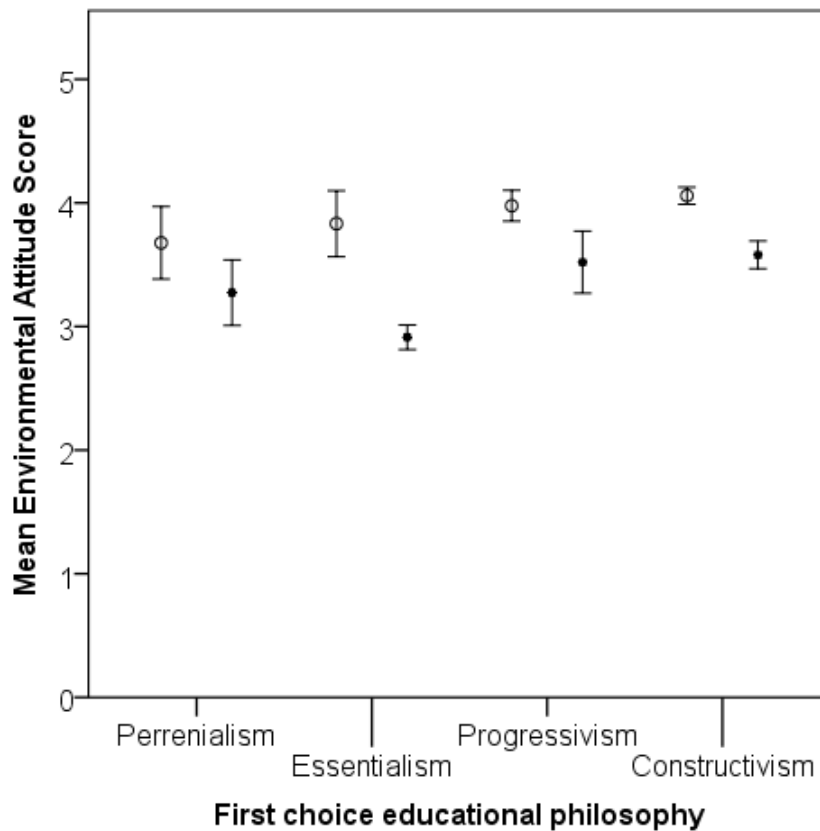


Figure 9: The interaction of importance of religion and educational philosophy with mean environmental attitude score. The open circles indicate a religiosity score of not as religious and the closed circles indicate religious. Error bars represent a confidence interval of 95%. These answers were given in an internet survey of environmental attitudes among homeschoolers and public schoolers.

Survey Results: Structure of Homeschooling

Of the 471 homeschoolers reporting on the structure of their learning, 11% selected very unstructured, 22% somewhat unstructured, 52% somewhat structured, and 16% very structured. Importance of religion was significantly associated with the amount of structure in the homeschool ($\chi^2_{(4)} = 69.9$, $p < 0.001$), Cramer's $V = 0.4$, $p < 0.001$. There

was no significant difference between the number of religious and not-as-religious homeschoolers who were practicing unstructured homeschooling, but there were significant differences in the structured homeschooling (Figure 10). Religious homeschoolers tended to prefer either a somewhat or very structured homeschooling style.

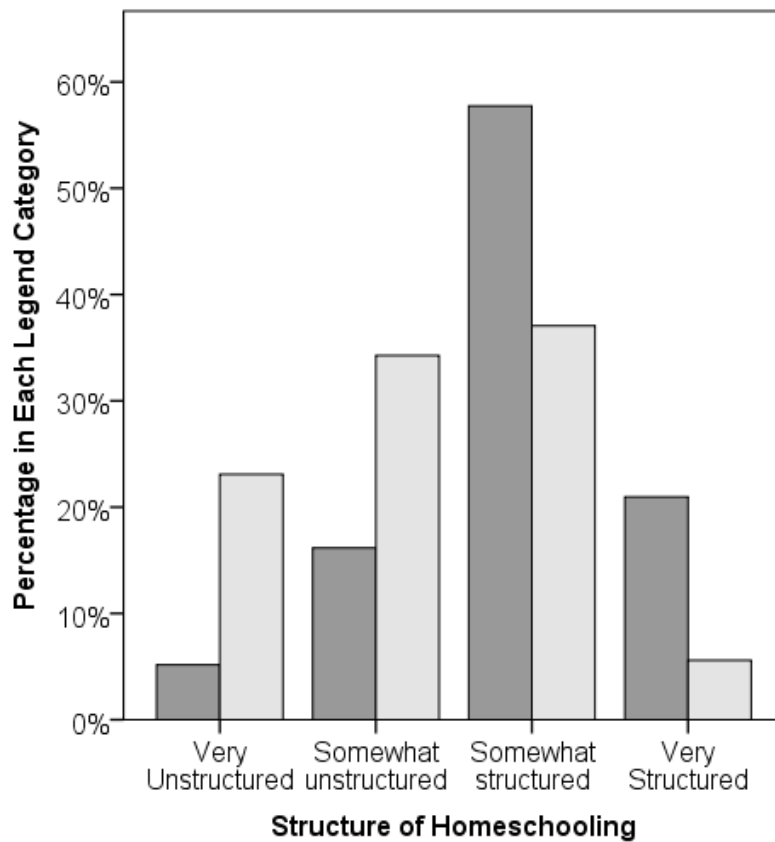


Figure 10: Structure of homeschooling in religious and not-as-religious homeschoolers. The dark grey bars represent responses given by those who scored as religious and the light grey bars represent responses indicating not as religious. The responses were given in an internet survey on environmental attitudes.

A one-way ANOVA determined that homeschool structure had a significant effect on mean environmental attitude score ($F_{(3, 469)} = 28.597, p < 0.001$), with a medium effect size of $r = 0.39$. A post-hoc Games-Howell test shows that very unstructured

homeschoolers score significantly higher ($n = 51$, $M = 4.11$, $SE = 0.06$) than somewhat unstructured ($n = 103$, $M = 3.76$, $SE = 0.07$), somewhat structured ($n = 244$, $M = 3.32$, $SE = 0.05$) and very structured ($n = 72$, $M = 3.10$, $SE = 0.09$), indicating a trend of lower environmental attitude score as structure of homeschooling increases (Figure 11).

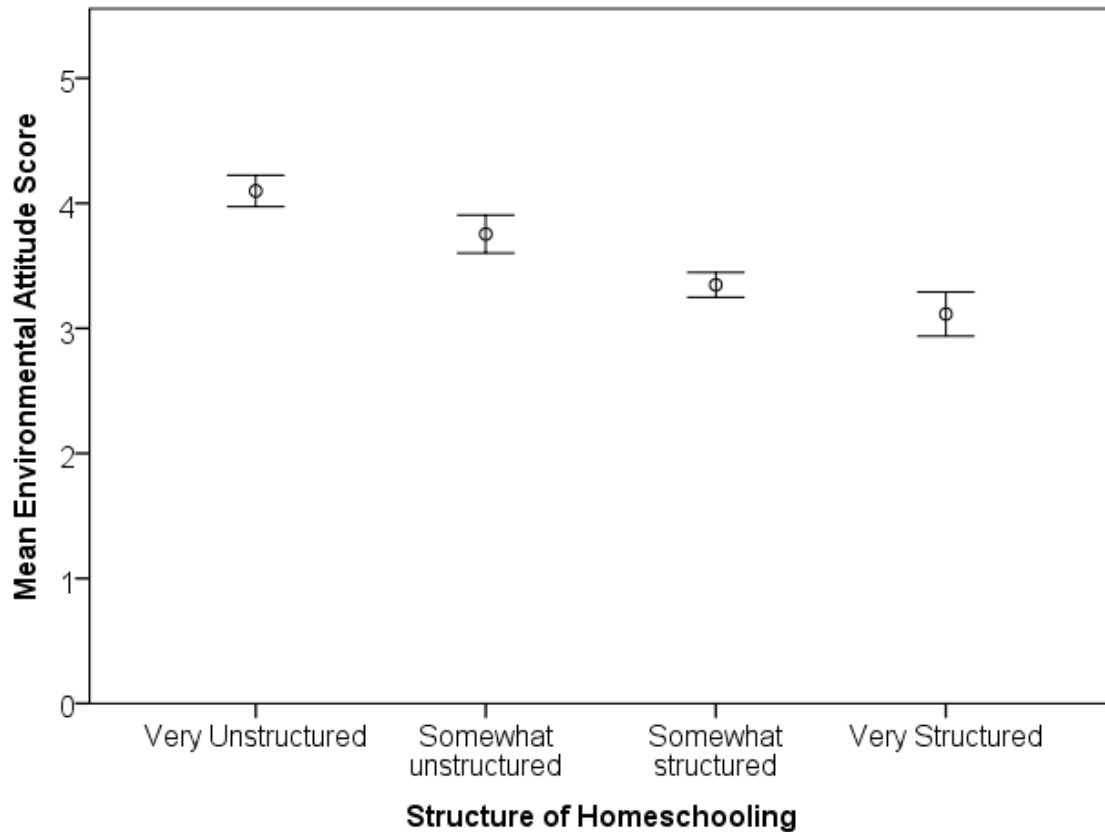


Figure 11: Mean of environmental attitude score versus structure of homeschooling. The error bars represent a confidence interval of 95%. Responses were given in an internet survey on environmental attitudes.

A significant association was also found between the choice of primary educational philosophy and the amount of structure in homeschooling ($\chi^2_{(9)} = 104.211$, $p < 0.001$), Cramer's $V = 0.273$, $p < 0.001$. Of the very structured homeschoolers ($n = 70$), 67% of them chose the essentialism category ($z = 4.9$). Of the very unstructured

homeschoolers ($n = 51$), 92.2% of them chose constructivism ($z = 4.3$), as did 71% of the somewhat unstructured homeschoolers ($n = 103$, $z = 3.0$). These results show that unstructured homeschooling respondents tended to prefer a child-centred philosophy of education.

Regression analysis was conducted to examine how much of the variance in mean environmental attitude could be attributed to each factor. Table 19 shows the results of a stepwise regression with the dependent variable of environmental attitude and dummy variables of religious or not, fundamentalist or not, very structured homeschool or not, and child-centred educational philosophy or not. The variable of religious or not is still the most significant predictor of environmental attitude score. Fundamentalism added 4.6% of the variance, structure of the homeschool added another 2.5%, and child-centred educational philosophy added a further 4.5%.

Table 19: Multiple Regression Results for Dependent Variable Mean Environmental Attitude Score

		<i>B</i>	Std. Error <i>B</i>	β	r^2
Step 1	Constant	4.124	0.052		
	Religious or Not	-0.911	0.066	-.570*	0.325*
Step 2	Constant	4.135	0.051		
	Religious or Not	-0.755	0.070	-.472*	
	Fundamentalist or Not	-0.416	0.077	-.237*	0.371*
Step 3	Constant	4.237	0.056		
	Religious or Not	-0.670	0.072	-.419	
	Fundamentalist or Not	-0.397	0.073	-.226	
	Very Structured or Not	-0.263	0.066	-.166	0.396*
Step 4	Constant	3.863	0.086		
	Religious or Not	-0.563	0.072	-.352	
	Fundamentalist or Not	-0.351	0.073	-.200	
	Very Structured or Not	-0.177	0.066	-.112	
	Child-Centred or Not	0.384	0.069	.240	0.441*

Interview Results: Educational Philosophy

Educational philosophy was not a focus of the qualitative interviews; however, it was evident that most of the more religious homeschooling interviewees disagreed with some of the values that were being taught in public schools, although they did not appear to hold anti-school views in general. For example, a Fundamentalist Christian homeschooler commented that her family decided to homeschool “for Christian reasons because the public school system has so ...starting to really move away from values. They teach children the UN Children’s Charter of Rights and Freedoms very early to kids, which is not always helpful” (R145). In this case, the interviewee was expressing the wish for more parental influence over the child’s education and was not happy that the

child was being taught about his or her rights as the family did not subscribe to the same ideas.

At the other end of the spectrum, another respondent, who identified as following an “earth-based” religion, commented that “fundamentally the [public school] system seems to be geared toward producing compliant workers” (R742) and this person wished her child to have a more self-directed learning experience. Within the qualitative results, while indirectly stated, there was a general trend for religious homeschoolers to be more parent-centred and for the not-as-religious homeschoolers to be more child-centred in their educational philosophies.

Interview Results: Structure of Homeschool

Although interview questions did not specifically ask about homeschooling structure, through most of the conversations it became evident that semi-structured homeschooling was the most prevalent. This type of homeschooling would involve using some curriculum handbooks and parents showed knowledge of provincial curriculums, but they took a relaxed approach that generally let the child lead. The religious interviewees mentioned Christian curriculums, such as Bob Jones and A Beka, that they used, but for the most part they also seemed to take a fairly relaxed approach to their homeschooling. One not-as-religious homeschooling interviewee described their typical day:

Well, typically it starts with sleeping until we feel like waking up. And that I’ve come to realize is a very underrated part of health. And I think that is a big part of not getting sick very often. Then we may look on the

internet for things they like or play a game. Sometimes they have questions or we will watch or notice - like for example the other day we looked at optical illusions on the internet. And they play, go outside or go to friends. They do a lot of dance and my other daughter does a lot of riding - those are the 'we have to be somewhere' parts of the day. And we listen to stories on tape in the car. Usually I pick those. And they have books that they read. And we seem to stay up a bit late but we always talk and enjoy that. (R443)

Another not-as-religious interviewee discussed how they had intended to take a more structured approach but over time they found a more unstructured style suited them better.

It is way more fun if we just carry on and learn interesting things as they come up rather than trying to force some kind of agenda. Back in the beginning, especially with my youngest one, people would say, oh you have to have a curriculum, and I'm not at all good with forcing someone to follow a curriculum. I maybe would try for ten minutes and then it became obvious that we were both miserable and we would go off to the science centre or go swimming or go to the creek and hang out with people who were learning to spin or whatever. (R509)

This person continued sharing a constructivist style of educational philosophy:

My philosophy is that you find someone who really does know what they are doing, if you want to learn something, and you ask them, and hopefully they will be able to share with you the benefit of their experience. And then you get actual real learning going on. So we go and learn how to

weave at [location] because people who know how to weave are there.

(R509)

Another homeschooler noted how a child-centred approach was working for their family:

I just saw how powerful her learning ability was when it was something that she wanted to learn. And that is what changed my mind. Trusting that she wanted to learn things and that she could, with not that much intervention. (R616)

In general, all of the interviewees were happy with their choice to homeschool and felt it allowed a lot of flexibility and joy into their lives. As one said, homeschooling is “just enjoying life and all it offers” (R700), a thought echoed by another who said, “homeschooling for us is just like living” (R507).

Discussion

The hypothesis that there would be a significant interaction between the structure and philosophy of homeschooling and environmental attitudes could not be rejected. Results showed that a more child-centred educational philosophy was associated with a significantly higher score on the environmental attitude scales while a more back-to-basics approach was associated with a lower score. This back-to-basics approach, following the essentialism philosophy, was favoured by highly religious respondents. Analysis showed that respondents who follow the essentialism philosophy and rated religion as highly important in their lives had the lowest level of environmental concern. This interaction suggested that a religious homeschooler was more likely to subscribe to a

back-to-basics educational model and have environmental attitudes more in line with the dominant social paradigm, with weaker feelings of connectedness to nature.

The back-to-basics model also tended to be a more structured homeschool than the child-centred homeschooling. If the parents are letting the children take the lead, it makes sense that the homeschooling would be more unstructured, as supported by the data. As structure and religiosity increased, environmental concern, as measured by the scales, decreased.

The results were consistent with the literature which suggested that homeschoolers who followed a more structured style of homeschooling were also those who were more religious (Kunzman, 2009). The percentages of respondents following various levels of structure in their homeschooling were comparable to Priesnitz's (1990) study which finds that within her sample of Canadian homeschooling families, 68% characterized their program as informal, 30% classified their style as unstructured and a further 20% as child directed.

The phenomenon of the religious parents wanting to lead the children's education in a structured way is explored in Kunzman (2009). He also finds the issue of the UN Children's Charter of Rights and Freedoms coming up in his interviews of American homeschoolers. The fear of governmental interference in education and erosion of parents' rights is prevalent among American homeschoolers and given that it was mentioned by respondents in the current study, this may also be felt in Canada. The more structured style of religious homeschoolers is also shared across the border, though none of the interviewees in the current study were extremely structured in their teaching.

It is evident that these variables taken together are forming part of a certain type of lifestyle. Religiosity was the most significant variable and seemed to be the central point around which the other variables revolve. The importance of religion in the respondents' lives impact how they think about the environment, how they think about education, and ultimately how they practice education.

Conclusion

The question of how the variables of religiosity, educational philosophy, homeschool structure and environmental attitude intersect was explored in this chapter. Consistent with the literature on US homeschool families, more religious respondents tended to choose an essentialist philosophy along with a more structured homeschool and these people scored lower on the environmental attitude scales. An essentialist philosophy is more parent directed and so the correlation with a structured homeschool made sense. That these factors were also associated with a stronger sense of religion is consistent with the idea that religious homeschoolers want to teach their children values that reflect their own. The analysis of these complex factors is still preliminary among Canadian homeschoolers and more qualitative exploration of these ideas may be valuable. In terms of influencing environmental attitudes, religiosity appeared to remain the dominant factor that weaves the variables together. A picture emerged of child-centred unstructured homeschoolers with stronger environmental values on one end of a continuum and on the other end, religious, structured homeschoolers following a back-to-basics essentialist approach and having weaker environmental attitudes.

Chapter 8: Developing Environmental Attitudes

This chapter reviews the literature exploring what significant life factors influence the development of environmental attitudes. The data collected in this study is then examined to add to this body of literature, with the main focus on the qualitative data. The data on significant life experiences are compared to similar studies and emphasis is placed on the key factor of time outdoors.

Forming an Ecological Identity

As we attempt to steer our society onto a sustainable path, researchers and educators must take note of how people who are already on such a path came to be there. Studies show that connection to nature is an important predictor of ecological behaviour and subjective well-being (Berns & Simpson, 2009; Cortese, 1995; Mayer & Frantz, 2004; Wells & Lekies, 2006). If the goal is a society of people with empathy for and connection to nature and a commitment to action on behalf of the earth, what are the life experiences that have produced these attitudes and behaviours?

Chawla (1998) reviews research dating back to 1980, asking through open-ended surveys and interviews what led people to become active members of conservation groups or to become environmental educators. She finds the same reasons for environmental concern are given repeatedly: the experience of natural areas; family role models; being a member of a nature-oriented organization as a child; negative experiences regarding

pollution, radiation or witnessing habitat destruction; education; friends; and the influence of their job, in that order of importance. She concludes that there are diverse paths to environmental consciousness. Ewert, Place and Sibthorp (2005) confirm that exposure to environmental beliefs through the media and the witnessing of a negative environmental event lead to more ecocentric attitudes. For most people, there is no one single experience but many working together; however, cross-culturally, similar experiences seem to form the basis for environmental identity.

In a follow-up study, in which Chawla interviews environmentalists in the United States and Norway (1999), being outdoors as a child is the most significant factor in development of environmental attitudes, second is the presence of family members who spent time with the child in the natural setting and taught them about nature, such as how to fish or the names of plants. Education is in fifth place, and is significant mostly due to memories of inspiring teachers or classes and opportunities to take action. Because her research asks people to talk about experiences across their lifespan, she is able to show that "people later built on childhood experiences of free play in nature and influential adults through processes of education, work, or membership in environmental organizations, learning the skills necessary to turn an initial interest in nature into a vocation or avocation" (Chawla, 2006, p. 63).

Chawla's (1998) work highlights that being in the outdoors as a child is a key factor in developing environmental attitudes, a result that has been replicated in further studies. For example, Sebba (1991) finds that adults almost always identify the outdoors as the most significant place in their childhood. After surveying 232 members of the National Environmental Education Association of the United Kingdom, Palmer (1993)

reports that when asked which experiences in life led to a concern for the environment, childhood experience in the outdoors is most significant, a result that is also found in a similar study in Canada (Palmer, 1999; Palmer, Suggate, Robottom, & Hart, 1999). Expanded to nine different countries (Australia, Canada, Greece, Hong Kong, Slovenia, South Africa, Sri Lanka, Uganda, and the UK), her research shows that direct experience with nature is the most influential factor in the development of environmental awareness in adults, and particularly childhood experiences of nature (Palmer et al., 1998). The literature is quite consistent in terms of what experiences have an influence on the development of environmental attitudes.

At what stage of their lifetime people spend time outside may also be important. The literature suggests that spending time outside when young may predispose someone toward having certain environmental attitudes and possibly an interest in preserving the environment later in life. Palmberg and Kuru (2000) report that among youth, outdoor experiences can build connection and empathy with nature. Sivek (2002) finds that visiting outdoor areas is the most important influence on how high school students feel about the environment. Role models, often associated with being in the outdoors such as a field trip leader or environmental club advisor, are the second most important influence cited. A study by Kals et al. (1999) shows empirically that direct experience with nature in childhood is a strong indicator of emotional affinity with nature later in life.

The type of outdoor experiences in childhood and youth is also an important factor in the development of an individual's environmental attitudes. Outdoor appreciative experiences, such as bird watching or enjoying scenery, are predictors of ecocentric attitudes (Ewert, Place, & Sibthorp, 2005). Participation in 'wild nature' (e.g.

hiking, playing in the woods) also strengthens environmental attitudes and environmental behaviours (Wells & Lekies, 2006). Participation in 'domestic nature' (e.g. gardening, planting trees) shows a weaker effect on attitudes and an even weaker effect on behaviour (Wells & Lekies, 2006). Consumptive experiences (e.g. foraging for mushrooms, hunting) are predictors of anthropocentric attitudes (Ewert, Place, & Sibthorp, 2005). Mechanized experiences are not significant predictors of the attitude type (Ewert, Place, & Sibthorp, 2005). Some studies have found participation in structured outdoor environmental education programs (e.g. scouts, camps, school) does not have a significant correlation with attitude or behaviour (Wells & Lekies, 2006). The type of outdoor experiences that involve direct contact with nature, are fairly unstructured and also non-consumptive have the strongest connection to the development of environmental concern. The quality of the experience plays a role in the type of connection that is formed with nature. It is difficult to draw definite conclusions from correlational studies but the literature suggests playing outdoors during childhood in an unstructured and spontaneous fashion has beneficial effects on connection with nature as an adult, even influencing behaviours.

Children receive a variety of benefits from spending time in nature: better concentration, more self-discipline, more advanced motor skills, more imaginative play, stronger language skills, stronger observational skills, less stress, less bullying, and a sense of independence (Kellert & Wilson, 1993; Kellert, 1996, 2005; Louv, 2005; White, 2004). Unfortunately, White (2004) reports that children are losing this unmediated experience with the environment. Instead, nature is coming to children in virtual ways, through media, computers, and documentaries, or indirectly through zoos and museums

(Blewitt, 2006). This does not have the same effect of building a personal connection to nature (Kellert, 2005).

Louv's (2005) landmark book on what he calls 'nature-deficit disorder,' *Last Child in the Woods*, ignites a discussion throughout North America about the lack of outdoor play time that our society's children are now experiencing. A 'culture of fear' and years of teaching 'stranger danger' has led parents to keep their children inside or confined to organized sports (Nutbrown, 2006). Children are now playing less in general, instead spending more time in organized sports and lessons and on homework (White, 2004; Wridt, 2004). As White (2004) and Burdette and Whitaker (2005) report, the amount of time 6 to 8 year olds spent 'just playing' decreased by 25% between 1981 and 1997; what time they do spend playing appears to be mostly indoors. Urban children spend little unsupervised time outdoors, 47 minutes per day in 1997 compared to 86 minutes per day in 1981 in the United States (Pilgrim, Cullen, Smith, & Pretty, 2008), with some reports putting it as low as 30 minutes a day in 2001 (Wells & Lekies, 2006). Canadian children are also not outside, spending "on average less than 10 hours per week participating in outdoor experiences, versus 20-30 hours per week indoors engaged in non-vigorous activity" (Clements, 2004, p.69). Wells and Lekies (2006) report that only 1% of children's time is spent outdoors versus 27% spent watching television. In contrast, a survey of homeschooled fourth graders found that fewer than 3% watch more than 3 hours of television per day; the comparable national figure is 38% (Medlin, 2000). However, information regarding the amount of time homeschoolers spend outdoors is scanty. Van Pelt (2003), in her study for the Canadian Centre for Home Education with

over 1600 families, concludes that homeschooled children watch less TV than children who are public schooled.

The above studies show that children's time outdoors has decreased over the last thirty years, but other historical studies have shown that the trend reaches back over the generations (Wridt, 2004). A study by Clements (2004) finds 70% of mothers reported that as a child they played outdoors every day, while only 31% of their children do the same. The number one reason identified by 85% of these mothers as to why their children do not spend more time outdoors is that their children are watching television.

Louv (2005) suggests the decreasing amount of unstructured outside playing time is having real and negative impacts on the future of our society, including ever-increasing levels of obesity but also disengagement and increasing apathy (also see Eliasoph, 1998). Cross (2002) discusses how alienation manifests in youth as "cynicism, bitterness, loneliness, aimlessness, no faith in the future, and lacking a sense of belonging" (p. 247). In contrast, studies show that early affiliation with the natural world is connected to what Osborne (1999) calls democratic citizenship—well informed, thoughtful participation in public affairs (Clayton & Opatow, 2003; Jardine, 2004). Stephen Kellert (1996) refers to society's "denial of a deep craving for meaningful association with the rest of creation" (p. 217). The lack of this connection to nature is something to be taken very seriously in Canada, given the trend of apathy and disconnection. The impacts of these changing patterns of play on environmental attitudes will require more research in the future.

Interview Results: Significant life experiences

To answer the current study's research question of what factors affect the development of environmental attitudes in homeschoolers and those involved with public school and whether the factors are similar in the two cases, interview participants were asked to discuss what in their life influenced or had an impact on the way that they think about the environment (see Chapter 2 for detailed methodology). Responses were firstly open coded, and then compared to the significant life experience literature (see Chawla 1998 for an overview). From the current study's data, twelve major categories emerged. Two (economic necessity and growing food) had not appeared in previous literature. Eighty percent of respondents mentioned more than one influence on their environmental concerns (Table 20). In further analysis, scores on the environmental attitude scales and environmental attitudes expressed during the interview (categorized as egocentric, homocentric and ecocentric) were assessed relative to the influences mentioned. Patterns among the interviewees are discussed in conjunction with the influences cited.

Table 20: Influences on Attitudes Toward the Environment as Reported in Interviews

Major experiences	% citing influence (<i>n</i> = 20)	Homeschoolers (<i>n</i> = 15)		Public Schoolers (<i>n</i> = 5)	
		% citing as primary influence	% citing influence*	% citing as primary influence	% citing influence*
Childhood outdoor play	75	13	73	40	80
Parents	65	33	73	20	40
Religion	35	27	47	0	0
Education	20	0	13	40	40
TV/Media/Internet	15	0	13	0	20
Negative experiences of environmental destruction/pollution	10	13	13	0	0
Teachers	10	0	7	0	20
Environmental organizations	5	0	7	0	0
Becoming a Parent	5	0	7	0	0
Inherent interest	5	7	7	0	0
Economic necessity	5	7	7	0	0
Growing food	5	0	0	0	20
*column total exceeds 100% due to participants providing multiple responses					

As was the case in other studies (Chawla, 1999; Palmer, 1993; Sebba, 1991), childhood outdoor play was the most common response, mentioned by 75% of the interview sample. Those who cited time outdoors as an influence ranged the entire span of environmental attitudes, including respondents who were more egocentric, right through to ecocentric respondents. However, almost all who chose time outdoors as their primary influence had stronger environmental attitudes.

Respondents discussed how they would spend hours outside, whether in rural or suburban areas, playing in an unstructured fashion. Activities such as camping, swimming, fishing were mentioned, but more often, the respondent reminisced about simply playing in the outdoors. They spoke about feelings of freedom, peace, and connection, with great enjoyment of the natural surroundings. One respondent remembered, “For me, that was where I felt...at home and much more at peace ...in particular, being surrounded by open space and trees and water” (R742). These experiences may have been alone, with siblings or with friends. They were often encouraged by a parent (usually a mother) urging the children to go outside.

Twelve of the fifteen respondents who cited outdoor childhood play as an influence also cited parents as an influence, suggesting that a parent may have modeled an environmental lifestyle. The influence of parents was the second most common response, mentioned by 65% of the sample. Again, parental influence was cited by a range of respondents, from egocentric to egocentric. However, the majority who chose parental influence as their primary reason for developing environmental attitudes were in the mid-range of environmental attitude scores.

Among those who mentioned parents as an influence, there was a theme of frugality, with many of the respondents mentioning that their parents had grown up in the era of the Great Depression and so avoiding waste was important to the family. These people would have been born sometime in the late 1960s, as children of baby boomers, and so the values of frugality would have been passed down three generations from their grandparents.

My parents were children of the Depression. My mother especially.

Like me, the primary person who runs the household and tends to run it the way she runs it. And she grew up in an era where wasting things was stupid. You didn't have things to waste, so you didn't waste them (R509).

This ethic of thrift was strongly connected to what is now considered a sustainable way of life, avoiding consumerism and waste. Other respondents had grown up in farming families and felt that their parents had demonstrated a connection with the land, even if they did not live in a consciously sustainable manner. Avoiding waste and being conscious of your impact was integrated into everyday life in a low key manner and seemed to play a strong role in the respondents' development of environmental attitudes.

Religion was the third most commonly cited influence in this sample, with 35% mentioning it, all of them homeschoolers. Most of these respondents had scored lower on the environmental attitude scale. None of the respondents in the upper half of the sample in terms of scores on the scale cited religion as an influence. This result is in keeping with previous analysis that concluded the religious respondents had a weaker environmental attitude.

Religion informed environmental concern in terms of a stewardship ethic and also in terms of a dominion over nature ethic. For example, one person summarized, "I take a lot of my attitudes toward the environment from what God says. He says in Genesis that he created the world for man. Man was to tend it; that is what I believe" (R145). The significance of religion is a re-occurring theme in this study, explored in previous chapters.

Education as a category of influence refers to formal education at any age, from elementary to university level. In fact, one interviewee mentioned both elementary school and university as separate influences on her environmental attitudes. This category was kept separate from teachers, where respondents mentioned one specific teacher as an influence. Two respondents placed education as their primary source of influence, but they were unable to give many specifics as to how or what part of education influenced them. Both had scored quite highly on the environmental attitude scale but in the interviews had exhibited more of a homocentric attitude. When prompted to discuss further how school had influenced attitudes toward the environment, one simply said, “I can’t really recall a whole lot. It was eons ago” (R793).

During the time frame of the interviews, a major oil spill was occurring in the Gulf of Mexico (Cleveland, 2010). The Deepwater Horizon oil spill occurred in April of 2010 and was still ongoing at the time of the interviews, causing extensive damage to coastal areas in the Gulf of Mexico. This oil spill was the largest to date and received widespread media coverage. This negative experience was mentioned by eight interviewees as a concern. This current event seemed to spark a sense of worry that the authorities would not be able to stop the negative impact of such a large environmental catastrophe.

One participant noted,

At the very least in the past, we've been able to fix the issue, cover up the issue, hide the issue, or whatever, eventually find a solution. You know, recycle, reuse and reduce, right? But now, this one. I think the size of it, the sheer magnitude of the oil spill [in the Gulf of Mexico], I know I keep bringing it up but it is very significant. It is going to alter our world - a lot of things ecologically in that area and not just that area but it is going to be a global effect. I'm sure. And so I'm anxious. I'm not usually a very anxious person, but stuff like that, that makes me anxious (R794).

This may also be a bias in the study's analysis in that an environmental issue was top of mind at the time of data collection. The concern over this issue may or may not translate into a long term worry. With this oil spill occurring at the time of the interviews, participants may have expressed a stronger environmental concern than they would normally. It is unknown whether these concerns will remain over time or whether they will influence future behaviour. But it has been shown in other studies (Chawla, 1999; Ewert, Place, & Sibthorp, 2005) that negative experience of environmental destruction or pollution can be an influence as a source of alarm and consternation. It seems to create a long lasting influence that can spill over into more general environmental concern.

Other negative environmental events in their lives may have also triggered environmental attitudes. In this sample, two participants cited negative experiences as the primary influence on their environmental attitudes. For one, it was an experience with local pollution in childhood, recalling, "I thought, look at what we are doing, it was just disgusting" (R614). The other participant cited a more long-term experience of seeing

how a much-loved community had changed over time, for example with increasing air pollution obscuring the view of the mountains.

The Gulf disaster could have also influenced other responses such as television, movies and the Internet as both a source of information about environmental issues and a source of influence in terms of developing environmental attitudes. However, these items were not mentioned as a primary influence by any of the interviewees. Membership in an environmental organization was only mentioned by one interviewee, and not as a primary influence.

The influence of becoming a parent was mentioned by one interviewee: “having my first child, it just definitely impacted me in a way that it is not just me in the world anymore. I’ve procreated and so I should make sure that she has all the world to live in” (R614). One respondent could not name a specific influence on her environmental attitudes, simply claiming that she “always had an interest in the environment” (R38). This person scored highly on the environmental attitude scales. This type of response is categorized as inherent interest, after an unpublished dissertation by James (1993, cited in Chawla, 1998) who reported 36% of his sample responded in this manner.

Two categories unique to this study were economic necessity and growing food, each mentioned by one interviewee. One mother related,

We experienced a loss of income, which required me to be clever.

But it also gave me a vehicle, I guess, toward thinking about doing things differently than I had done them before. So that I became you know, would ask myself the questions, why am I doing things a

certain way. And when I couldn't come up with an answer, I would start thinking about doing them another way (R518).

In this case, the lack of income forced the participant into a discovery of more environmental behaviour which then led her to seek out more information, thereby influencing her attitudes. The interviewee who mentioned growing food as an influence had a similar situation where one action, growing food, led her into a journey toward sustainability. She commented, "It was just like, let's try a garden and see how it goes. And buying a little place out of town. Just small steps that have led me to the choices that I make today" (R793). Economic necessity may become a new category in the study of influences on environmental attitudes. With the state of the economy in decline in many countries, this may become a new trigger for increasing consciousness of the environment. Whether personal economic crisis leads people to at times choose a more sustainable behaviour, and possibly lead to more environmental attitudes, may be a potential area for further research. The other possibility, of course, is that economic hardship leads people to turn away from sustainable choices unless they are also the cheaper option (Paehlke, 2009).

Interview Results: Time Outside as Part of Homeschooling

As mentioned above, spending time outside was mentioned by three quarters of the interview respondents as an influence on their environmental attitudes. Both public schooling and homeschooling parents recalled many happy times playing outdoors as a child. Structured outdoor play was not mentioned, nor was playing electronic games.

Television and movies were mentioned as a source of influence in terms of providing information about environmental issues, but not discussed as a past time.

Many of the interviewees had pleasant childhood memories of playing unfettered outside, riding bikes, walking, making up games. They also mentioned hiking and camping; as one person described it, “in nature, close and personal” (R372). Another person reminisced how they learned about nature by playing outside, “Playing in puddles up to my knees. Playing in ponds up to my knees. Watching pollywogs grow up. Catching them in jars and letting them go” (R347). This sentiment was echoed by another interviewee, “I spent a lot of hours, hours and hours, playing in the bush, in the trees with forts and things like that” (R372). Another commented, “I was outside I think more than inside” (R146). One interviewee described how the children in the neighbourhood played together,

We had freedom. Freedom to go through the neighbourhood, steal people’s raspberries or apples or whatever. We weren’t bad kids but we had a great time and we never got into trouble. And there were lots of forests and farmer’s fields and things and so we could disappear for four hours, sometimes more, and not have an adult. And we were very, very much entertained by outside and being outside (R794).

Another person reflected on how this outdoor play encouraged a connection to nature, saying, “you were immersed in it. You couldn’t possibly see yourself as separate because you were in it every single day” (R771).

A homeschooling parent recalls her children’s experience in playing outside in an unstructured fashion, “They would take things outside, like cutlery and cut things up out

there and pick flowers and make wreaths and take photos and raise ducks from eggs and find baby bunnies and creatures outside –birds and bird songs, planted food and flowers and trees. Just playing. Nothing and everything” (R443). Another parent discussed wanting her children to have the same experience in nature, commenting “I guess [playing outside as a child] gave me an appreciation for that kind of life and that kind of being in nature and stuff like that. I still do seek it out with my kids... I think it is good for the kids to be able to play in the woods for a while on a regular basis and be close to nature. And they love it!” (R507).

Homeschooling did seem to give the families opportunities to spend time outside. One person made an effort to do this regularly, saying, “I’m not sure if it is exposure to greenery or not, but I just have this idea that kids need a bit of freedom to grow up in a healthy way” (R518). Another parent sees this play outside as the start of education about the environment, “We are outside, even if it just in our backyard, every day. It is mostly my daughter right now that I am teaching and she is in the garden, she is learning, we planted the seeds together, she learns different parts of the plants... So she is learning, you know, everything that we do more or less, is centred around the environment” (R614). The homeschooling parents appreciated a slower pace of life that allowed them to set their own schedules, including time for outdoor play.

Survey Results: Time Outside

Returning to the quantitative data analysis, all survey participants were asked about time spent outside (structured and unstructured) and time spent watching TV, movies or playing electronic games. Respondents aged younger than 25 were asked to

describe how much time outside or watching TV they themselves experienced daily while other respondents were asked to respond on behalf of their children (see Appendix 4).

See Tables 21 and 22 for a summary of results on time spent outside.

Almost half of the respondents that were younger than 25 reported spending less than 30 minutes outside in structured play (e.g. organized sports) while more than 60% reported spending more than 3 hours in unstructured time outside (e.g. self-directed play). A similar pattern was found in respondents older than age 25, with 47% reporting their children spend less than 30 min daily in structured play outside and 48% reporting more than 3 hours daily in unstructured play. Homeschoolers showed a similar pattern.

Fifty-seven percent of homeschooled youth recounted spending less than 30 minutes daily of structured time outside and 57% said more than 3 hours daily of unstructured outdoor play. A lower percentage of public schooling youth spent less than 30 minutes in outdoor structured play (27%) and a higher percentage (67%) reported more than 3 hours of unstructured outdoor time. Chi-square tests showed no significant difference between the unstructured play time of home and public schooling youth; there was not enough data to properly assess structured play time of youth.

In this study, 50% of homeschooling parents responded that their children spend less than 30 minutes of structured time outside and 50% reported their children spend more than 3 hours in unstructured time outside. The respective percentages for public schooling parents were 40% and 43%. Chi-square tests show this difference for unstructured outdoor time between homeschooled and public schooled children is significant ($\chi^2_{(3)} = 17.216$, $p < 0.001$, with a small effect size, Cramer's $V = 0.17$, $p < 0.001$). Standardized residuals show that there were more public schoolers than expected who

spent unstructured time outside of less than 30 minutes ($z = 2.4$) and 30 minutes to 1 hour ($z = 2.4$). A standard residual greater than 2 indicates that the cells observed frequency is significantly higher than its expected frequency (Field, 2009). There was no significant difference for structured time outside. The possibility of social desirability bias was high here as parents might have over-reported the amount of time their children spent outside and the youth's self-reports might be inflated. The results suggested that homeschooled children spent more unstructured time outside than the public schooled children.

Table 21: Amount of Time Spent in Structured Outdoor Play Daily as a Function of Educational Model and Age Category

Structured Outdoor Time Daily	Homeschooling Children* (n = 445)	Homeschooling Youth (n = 42)	Public Schooling Children* (n = 148)	Public Schooling Youth (n = 28)
Less than 30 min	49.9%	57.1%	39.9%	28.6%
30 min-1 hr	19.8%	26.2%	24.3%	14.3%
1-3 hrs	20.7%	14.3%	21.6%	35.7%
More than 3 hrs	9.7%	2.4%	14.2%	21.4%
*as reported by their parents				

Table 22: Amount of Time Spent in Unstructured Outdoor Play Daily as a Function of Educational Model and Age Category

Unstructured Outdoor Time Daily	Homeschooling Children* (n = 445)	Homeschooling Youth (n = 42)	Public Schooling Children* (n = 147)	Public Schooling Youth (n = 28)
Less than 30 min	2.5%	0%	7.4%	3.7%
30 min-1 hr	9.0%	11.9%	17.6%	7.4%
1-3 hrs	39.0%	31.0%	32.4%	22.2%
More than 3 hrs	49.6%	57.1%	42.6%	66.7%
*as reported by their parents				

In terms of watching TV, movies or playing electronic games, overall the sample was fairly evenly distributed: parents reported 21% of their children spent less than 30 minutes daily in these activity, 23% spent 30 minutes to 1 hour, 29% one to three hours, and 28% more than three hours. Youth had a similar pattern: 27% said less than 30 minutes, 26% said 30 minutes to one hour, 31% said one to three hours and 16% said more than 3 hours. When the sample was divided into homeschooling and public schooling respondents, patterns emerged that echoed those of time spent outside, as seen in Table 23. Chi-square tests suggest a significant difference between homeschooling and

public schooling children ($\chi^2_{(3)} = 30.65$, $p < 0.001$) with a small effect size, Cramer's $V = 0.227$, $p < 0.001$. Examining the standardized residuals suggest the significant differences appear with more than expected public schoolers spending less than 30 minutes watching TV or a similar activity daily ($z = -2.7$) and less than expected spending more than 3 hours doing these activities daily ($z = 3.3$). There were not enough data points to conduct a chi-square test on the youth categories; however, small differences were apparent in the data with homeschool youth watching less TV, watching movies or playing electronic games than the public school youth. Almost 70% of homeschooled youth reported watching TV for less than one hour per day, compared with 30% of public schooled youth. In contrast, just over 70% of public schooled youth reported watching more than 3 hours of TV per day, compared to just over 30% of homeschooled youth.

Table 23: Amount of Time Spent Watching TV, Movies or Playing Electronic Games as a Function of Educational Model and Age Category

Time Daily	Homeschooling Children* ($n = 446$)	Homeschooling Youth ($n = 42$)	Public Schooling Children* ($n = 147$)	Public Schooling Youth ($n = 28$)
Less than 30 min	24.7%	38.1%	10.9%	10.7%
30 min-1 hr	25.1%	31%	15%	17.9%
1-3 hrs	27.4%	23.8%	32%	42.9%
More than 3 hrs	22.9%	7.1%	42.2%	28.6%
*as reported by their parents				

There was no significant relationship found between amount of unstructured or structured time outside and mean environmental attitude score, for either homeschoolers or public schoolers or the sample as a whole. There was a relationship found with amount of time spent watching TV or playing video games and importance of religion, where highly religious people watched less TV than not-as-religious respondents ($\chi^2_{(3)} =$

26.9, $p < 0.001$ with $n = 587$, Cramer's $V = 0.214$, $p < 0.001$). A majority of highly religious respondents reporting watching less than 30 minutes of TV per day (68.5%), as compared to 31.5% of not-as-religious respondents. This difference was not significant within public schoolers but was significant among homeschoolers, ($\chi^2_{(3)} = 21.9$, $p < 0.001$ with $n = 443$, Cramer's $V = 0.219$, $p < 0.001$). Significantly more than expected not-as-religious homeschoolers watched more than 3 hours of TV each day ($z = 3.1$) and less than expected religious homeschoolers watched more than 3 hours of TV each day ($z = -2.2$). No significant differences were found with regard to religiosity and structured time outside; there were not enough data points to assess unstructured time outside. In this case then, the quantitative results on time outside did not seem to affect environmental attitudes, though this interaction did appear in the qualitative results.

Discussion

The results from the qualitative portion of this study, though the sample is small, appeared to support the hypothesis that unstructured play outdoors in childhood influences the development of environmental attitudes. However, quantitative results did not bear out the connection between outdoor time and environmental attitudes, which might suggest that these concepts were too complex to measure reductively.

Within this sample, interviews suggested that spending childhood time outdoors in unstructured play created lasting memories and led to feelings of connection with nature. Having the freedom to craft their own games and having the natural areas to play in were important elements of these memories. This would be the so-called 'wild nature' play described by Wells and Lekies (2006) to have a significant influence later in life. Some

of the activities described in the interviews of the participants' children could more so be classified as 'domestic nature' such as gardening which may have a weaker influence. However, both activities are still a significant influence which bodes well for this generation.

That the majority of the current study's respondents cited multiple influences on the formation of their environmental attitudes hints at the complexity of the development of these attitudes and is consistent with other studies (such as Chawla, 1998; Ewert, Place, & Sibthorp, 2005; Palmer et al., 1998; Sebba, 1991). The flip side is that the categories that were mentioned were remarkably consistent with these other studies. This suggests that, for the most part, the ranges of influences are quite constant, even to the extent that the most popular responses tend to be in the same categories.

The percentages of respondents mentioning categories of influence can be compared to other studies in the literature. While it may seem like a high number of respondents in the current study's sample mentioned the outdoors as an influence on attitudes toward the environment, it is notably lower than in Peterson's (1982) similarly sized study where almost all respondents mentioned this, with fully half also specifying childhood play. Given the timeframe of her study, Peterson may have been tapping into a sample that had much less access to technologies than today. With the current prevalence of cable television and video games, it is perhaps not surprising that fewer respondents are experiencing meaningful direct contact with the outdoors.

The number of respondents mentioning family as an influence was comparable between the current sample and Peterson (1982), suggesting this has not changed as much over time. Palmer's (1993) study found that TV/media was mentioned as an influence by

23% of participants ($n = 232$); however other literature did not include this category. In the current study, while 15% of interviewees mentioned TV/media as an influence, none cited it as the primary influence. Peterson (1982) reports 18% of her sample mentioned environmental organizations ($n = 22$) while other studies report a more general mention of organizations (Chawla, 1999; Palmer, 1993); however only one interviewee in the current study mentioned this item and did not place it as a primary influence. Negative experience of environmental destruction or pollution is a category that was also mentioned in Chawla (1999) and appeared in the current study as well, with two respondents citing it as an influence. Cited by one interviewee in the current study, becoming a parent being an influence on environmental attitudes was also noted in Palmer (1993) by 9% of respondents. The categories and percentages of respondents falling into each category are fairly consistent over studies spanning the past thirty years. It will be important to note in future studies whether the trend of watching more TV will result in a corresponding decrease in the influence of time in nature and whether this also has an impact on environmental attitudes.

One difference in this study is the popularity of religion as a response. A high percentage (35%) mentioned religion as a strong influence when compared with other studies. These were the respondents who also scored lower on the environmental attitude scale and had weaker environmental attitudes expressed during the interviews. Religion was not a category at all in Peterson (1982), Sward (1999), or Tanner (1980). In Palmer (1993), religion was only mentioned by 6% of respondents, and in Chawla (1998), religion/principles were mentioned by 15% of respondents. The popularity of religion as an influence is due to the population of faith-based homeschoolers in the sample of this

study. In contrast, the other studies were mostly examining environmental educators or the general public. Religion is obviously important in these homeschoolers' lives and so is a pervading influence. None of the public schooling interviewees cited religion as an influence. Besides this, there were not any major differences detected between public school and homeschool respondents.

It is noteworthy that two of the public school participants cited education as a primary influence on their environmental attitudes, although neither was able to give specifics, even with probing. This is interesting as no specific instance stood out for them in their education but they had a general feeling of being influenced in some way. Whether this is due to some sort of social desirability bias that makes them feel they should mention education as an influence or whether their overall education truly made an impact in general would require much more in-depth discussion with the respondent. It does suggest that choosing education as an influence on a quantitative survey may require more nuanced analysis to determine the true source of the attitudes.

Although no differences were detected between homeschoolers and public schoolers with respect to influences on environmental attitude (except for religion), there were differences in the amounts of time spent watching TV or playing outdoors. According to the data for this sample, public schooling children spent more time watching TV or playing electronic games than homeschooling children and homeschooled children spent more unstructured time outside than the public schooled children. In the current study, homeschoolers still watch more TV than what was previously reported by Medlin (2000) at 3%. It is more comparable with the results of Van Pelt (2003) who finds that 26% of Canadian homeschoolers watch more than two hours of TV per day. The public

schoolers in the current study watched a comparable amount of TV to the average American fourth-grader, 38% of whom watch more than three hours of TV each day (Medlin, 2000). Once again, an effect of social desirability bias is a possibility as some parents may not want to admit how much time their children spend watching TV.

Within the current study's qualitative data, no patterns were detected relating influences on environmental attitudes as stated in the interviews with the linked quantitative data of income, age, location, occupation, and gender. There were weak patterns correlating interview comments indicating certain environmental attitudes with scores on the New Environmental Paradigm Scale and Connectedness to Nature scale. The weakness of the patterns may be due to the small sample size more than anything else. There is always the limitation that participating in the survey and interview re-emphasized concern for the environment and led to the expression of a higher level of consciousness in regard to the environment, a form of social-desirability bias.

Conclusion

As in other studies, time outdoors, especially in childhood, emerged as a significant influence on the development of environmental attitudes. Other significant factors in this study are parental influence, often again connected to outdoor activity, and religion, in different ways. Investigating the factors that lead to stronger environmental consciousness is important as we deal with our ecological crisis. In this case, religion correlated more with weaker environmental concern. This is a complex topic and each individual's path is unique; however, as this and other studies show, certain categories of experiences do seem to have a greater influence, with unstructured play having the

strongest link to environmental concern. If children are spending more time inside watching TV instead of playing outdoors, researchers should continue to investigate the impacts over time on the next generation in terms of environmental attitudes.

Chapter 9: Conclusion

Summary

Homeschooling in Canada is a relatively under-studied phenomenon, with most research occurring in the United States, and homeschoolers' environmental attitudes was an as-yet unexplored question. The underlying goal behind this research was to acquire a greater understanding of what factors influence different types of people to be environmentally concerned and whether the factors would be different between homeschoolers and public schoolers. It was unknown whether homeschoolers had a different level of environmental concern than families who were involved with public school. Therefore, this study began by surveying both homeschoolers and public schoolers (parents and former students), using the well-tested New Ecological Paradigm (Dunlap, Van Liere, Mertig, & Jones, 2000) and the newer Connectedness to Nature Scale (Mayer & Frantz, 2004). An internet survey was used as an effective method to reach many respondents from across the country in a low cost manner. An Invite-a-Friend aspect was included in the survey as a means of snowball sampling. Also, internet river sampling was utilized, with a link to the survey posted on many homeschooling websites and list serves, as well as general parenting-related websites. In total, 986 responses were received, with a completion rate of about 60%. Examination of missing data resulted in 713 usable surveys for analysis.

To give further depth to the quantitative results, follow-up interviews were conducted with a small subsample of respondents. This mixed method, follow-up

explanatory design provides a broader understanding, with the qualitative data providing validation and expansion of the quantitative data. Interviews were conducted over the telephone, again allowing a wide geographical spread of respondents. Twenty interviews were conducted in total and analyzed using Atlas.ti. Homeschooling interview respondents were chosen in a deliberate manner to represent key variables including ecocentric or egocentric environmental attitudes, strongly religious or not-at-all religious, and less than one hour or more than three hours unstructured play time each day. Interviews were semi-structured and approximately 25 minutes long, scheduled at a time convenient for the interviewee. The interviews focused on exploring the respondent's environmental attitudes and significant life factors that influenced the development of these attitudes.

Using the New Ecological Paradigm scale was a deliberate choice to increase comparability of the results with other studies and also to add to the body of literature accumulating on this well-used scale. In particular, the dimensionality of the scale is the subject of debate within the literature, although the authors of the scale have concluded that which factors emerge may simply be sample dependent (Dunlap, Van Liere, Mertig, & Jones, 2000). In this case of the current study's sample, reliability analysis showed good internal consistency with an alpha of 0.86 and strong item-total correlations, ranging from 0.34 to 0.72. Principal components analysis (PCA) revealed that a one-factor solution was best for this sample. A one-factor solution was also found for the Connectedness to Nature scale, consistent with other studies (Mayer & Frantz, 2004).

Demographic questions were included in the survey, asking for age, gender, education, occupation, racial background, income, location, religious views, and

educational philosophy. Demographic results were not significantly different between homeschooling and public schooling respondents, except for those having to do with religion. The sample consisted of mostly white, Anglophone mothers. With regard to homeschooling respondents, 15% had an income of less than \$36 000. This is a smaller percentage of low-income respondents than other Canadian studies (Priesnitz, 1990; Van Pelt, 2003). More research will be needed to determine if these results suggest a trend of more higher-income families deciding to homeschool.

One of the key research questions in this study was what factors had an impact on environmental attitudes. Demographic responses were tested to determine if they were significantly related to the respondents' scores on the environmental attitude scales, with mostly negative results. The only variables that were significant were locale and religion. Urban respondents scored significantly higher than rural respondents but the difference was quite small. Religion turned out to be a very important factor in the study and an entire chapter was therefore devoted to those results.

Religious homeschoolers reported that their main motivation for choosing this style of education was the transmission of particular beliefs and values to their children. Not-as-religious homeschoolers reported their desire was for more child-centred education. Common to both groups of homeschoolers, as revealed by the interviews, was a strong commitment to providing the best education to their children, including allowing for high academic achievement, strong critical thinking skills, and better socialization. Parents were also drawn to a slower pace of life and the development of a stronger connection with their children. The choice to homeschool was not due to an anti-public school mentality but seen as simply the best choice for their families.

In terms of environmental attitudes between homeschoolers and public schoolers, when taken as two groups, there was no significant difference. The difference only appeared when importance of religion was taken into account. Significant differences emerged when the sample was divided into three groups: religious homeschoolers, not as religious homeschoolers and public schoolers. Within the group of public schoolers, no significant differences were found based on importance of religion; therefore, they were kept as one group for comparison purposes. It became evident then that the sample was consistent with how homeschoolers are categorized in the literature as ideologues and pedagogues (Gaither, 2008a). Although previous Canadian studies of homeschoolers found that religion did not play a major role in motivation to homeschool (Arai, 2000; Brabant, Bourdon, & Jutras, 2003), religion and religiosity clearly was a major factor in the current sample.

A pattern emerged for both the New Ecological Paradigm scale (NEP) and the Connectedness to Nature scale (CNS): religious homeschoolers scored the lowest, public schoolers in the middle, and not-as-religious homeschoolers scored the highest. A high score indicates a stronger level of environmental concern as measured by the scales. The qualitative data supported these results, with religious homeschoolers expressing weaker environmental attitudes in terms of climate change and the need for change toward a more sustainable lifestyle.

However, the interview results illuminated the complexity of individual environmental attitudes as even those who seemed weak in terms of concern for environmental issues still expressed a connection to nature. In these cases, care for nature was articulated in terms of enjoying being outside. Frugality was also a strong theme that

was not overtly environmental but linked to sustainability in terms of reducing waste and consumption. For some, these values were tied to their religion and to a stewardship ethic of taking care of God's creation. Even with this stewardship ethic, for the religious interviewees a sense of separation existed between humans and nature that was not as prevalent among the not-as-religious interviewees. For the latter, environmental concern manifested as a desire to keep the world balanced between the needs of humans and nature.

Thus, the survey results exhibited an interaction between environmental attitude score and religiosity (importance of religion). Christian and Fundamentalist Christian homeschoolers scored significantly lower on both environmental attitude scales. However, regression analysis showed that the variable of religiosity had a stronger effect than denomination. Given that Fundamentalist Christians are more likely to rate religion as highly important in their life, the variables are clearly linked. Religiosity and fundamentalism together explained a quarter of the variance on NEP scores. This link between religion and lack of environmental ethic has been widely investigated after Lynn White Jr. (White, Jr., 1967) controversially asserted that Christianity was the root of our environmental problems. The intensity of his argument has been toned down somewhat over the years, with many studies showing the correlation is not quite as strong as he postulated. However, the results from this sample at least support his general conclusions in terms of the relationship between a religious outlook and a sense of dominance over nature, as measured by the NEP. On NEP items having to do with the hierarchy of humans over nature, Christian and Fundamentalist Christian homeschoolers scored significantly lower, suggesting a dominionistic attitude. CNS results echoed those of the

NEP. Interviews drew attention to the fact that this dominionistic attitude was not necessarily exclusive of a stewardship ethic.

Some religious interviewees expressed a desire to care for God's world even as it is meant for human use. However, this idea was not shared by all and the more accepted theory of a dominionistic attitude, meaning that humans may use the earth as we see fit, was also expressed. Literal belief in the Bible also played a role, particularly when it came to ideas such as the 'rapture'³ which may in the end result in environmental problems being moot for the faithful. Many of the highly religious interview participants did not believe that animals had rights and saw animals as lower than humans in a divine hierarchy. Disbelief in climate change was widely expressed among religious interviewees.

The educational philosophy and structure of homeschool in the sample was also explored through the survey data. It was found that respondents who chose a more child-centred educational philosophy also scored significantly higher on the environmental attitude scales than those who chose a more 'back to basics' philosophy. The back to basics philosophy was chosen most often by those who rated religion as highly important in their lives. These religious homeschooling respondents also favoured a more structured style of schooling and there was also significant interaction with higher structure correlating with lower environmental attitude score. Unstructured homeschooling respondents tended to choose a child-centred philosophy of education and score higher on the environmental attitude scales.

³ The rapture is a reference to the Bible passage Thessalonians 4:17; for many fundamentalist Christians it is part of an end of the world scenario when Christ returns and saved individuals (believers) will rise up and join him.

In conjunction with having more structured, back to basics styles of homeschooling, the children of the more religious respondents were found to spend less time watching television or playing electronic games. More of the not-as-religious homeschoolers watched more TV, while religion did not seem to play a role in how much TV the public schooled children watched. Overall, results suggested that homeschooled children spend more unstructured time playing outside than public schooled children.

This unstructured play time could play a strong role in the development of environmental attitudes later in life for these children. Among the respondents interviewed, the majority mentioned play time outside in childhood as an influence on their environmental attitudes. The interviewees with the stronger environmental attitudes mentioned this more often as a primary influence. Interviewees with weaker environmental attitudes tended to be more religious and referred to their religion as a strong influence.

While religion was somewhat unique to this sample, other categories of influences on environmental attitudes mentioned by interviewees were quite consistent with the literature. Unstructured outdoor time as a child remained the most significant influence, but others including parents, school, teachers, TV/media, and negative experiences of pollution were also important factors. Economic necessity was a new category which may bear inclusion in future studies. As economies worsen, people may return to a depression-style of living where avoidance of waste is paramount, leading inadvertently to sustainable choices, as happened with one interviewee in this study.

In conclusion, the original hypothesis that homeschoolers have stronger environmental attitudes than public schoolers can be rejected. However, that would be a

superficial answer and delving into the data showed a more nuanced picture hinging on religiosity. Once importance of religion is taken into account, the picture clarifies with strong differences in environmental attitudes apparent between religious homeschoolers and not-as-religious homeschoolers, with public schoolers falling in the middle of the continuum. Given that there were no such differences between religious and not-as-religious public schoolers, it would seem that the confluence of homeschooling and religiosity is the key factor influencing environmental attitudes. However, the bottom line is that there is a complex web of interacting factors that influence something as complex as our attitude toward environmental issues.

Interpretation of Findings

Originally, it was hypothesized that homeschoolers may score higher on environmental attitude scales than public schoolers because of the overlap between the literature in the fields of environmental education and homeschooling suggesting common goals and techniques. The ideas of cooperative learning, emphasis on real life, hands-on lessons, reducing alienation and striving for a better world appeared consistently in these two separate sets of literature. In the end, the picture is much more complex within the homeschooling milieu. How these educational ideals are manifested depends on what type of homeschooler is enacting them. In this study, the variable of religiosity (measured by asking how important religion is in their lives) touched on all of the other significant factors. This is perhaps not surprising given the historical roots of homeschooling being based in the Christian faith, at least in the United States. The scores on the attitude scales revealed a continuum of environmental concern: lowest concern in

the religious homeschoolers, public schoolers in the middle and highest concern in the not-as-religious homeschoolers. In a sense then, homeschoolers are representing the two extremes, on the right and on the left. The so-called heaven-based homeschoolers may still hold to the ideals of cooperative, real-life learning and certainly want the world to be a better place, but these ideals have a different meaning to them than they would for left-leaning homeschoolers. With public schoolers appearing in the middle of the spectrum, perhaps public schooling is a mediating influence on children whose parents may also hold strong beliefs similar to homeschooling parents. In conclusion then, the study did show that environmental attitudes were different between homeschoolers and public schoolers; however, it depended on the type of homeschooler and it might not have been the homeschooling *per se* that was having the influence.

Although this research study did not find that homeschooling as an alternative educational model had a direct influence on the development of environmental attitudes, it did contribute knowledge as to how other significant factors interact. As this conceptual model shows (Figure 12), the results of this study highlight the importance of considering variables associated with religion when exploring the development or level of environmental attitude or when conducting a study of homeschooling. Religiosity in particular is a key factor that mediates the relationship between homeschooling and environmental attitudes. Other factors such as locale (urban or rural) and time spent in unstructured play outdoors as a child were also shown to be important. More studies are needed to continue filling in this picture and determining the links between the various factors that contribute to environmental attitudes.

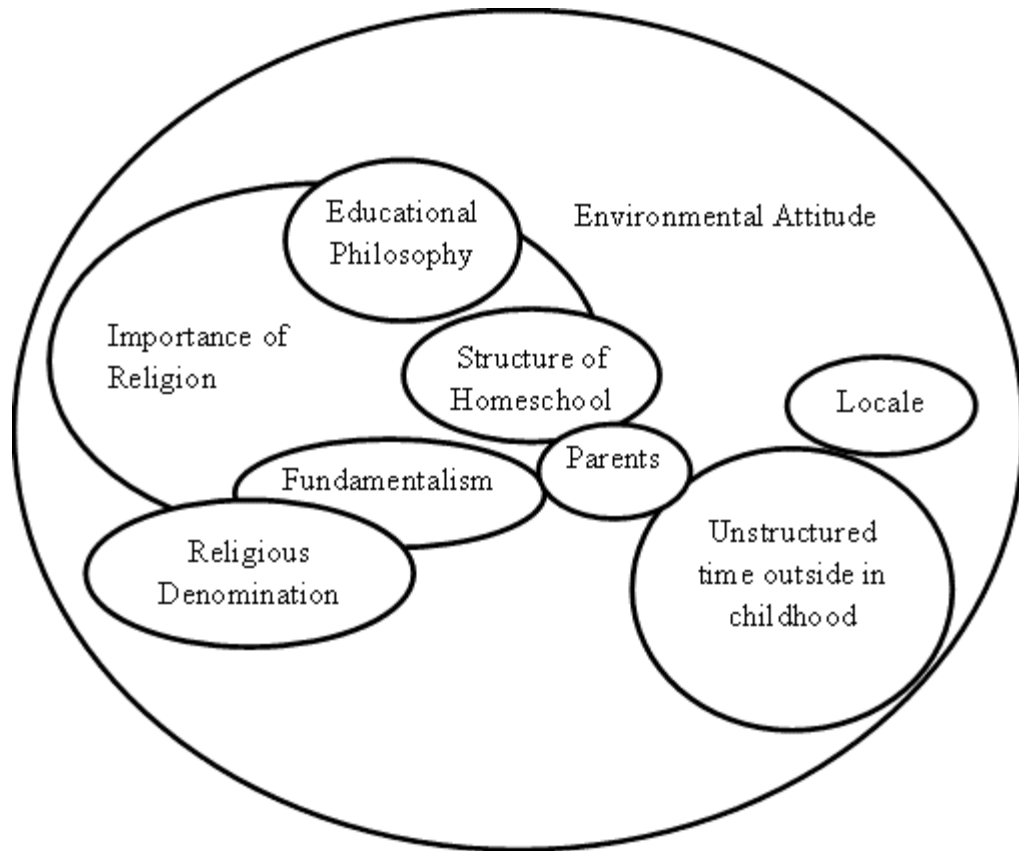


Figure 12: Conceptual Model of Significant Factors Influencing Environmental Attitudes

Results highlight the complexity of individuals' attitudes toward the environment. In testing the value-basis model as an underpinning for the NEP, the results showed that few people fit a discrete category like ecocentric or homocentric; rather there is a continuum. In this sample, the category of homocentric attitudes did not fit neatly into the middle between egocentric and ecocentric; rather, they were spread throughout the interviewees and not as connected to their NEP score. This shows the difficulty in categorizing people according to a quantitative measure. Interviewees expressed concern for humans, whether they had scored highly on the NEP or not. Many participants shared

a concern for humans and future generations as part of their environmental concern and this was not revealed in their score on the NEP. However, those participants who were focused on the impacts of environmental issues on themselves as an individual did score low on the NEP and those who were concerned about nature as intrinsically valuable scored higher on the NEP. So, the scales are still useful but results should be interpreted with caution. A quantitative scale can only show correlations and conclusions will not apply to everyone. It is helpful to also have qualitative data to further explore possible conclusions. In this study, interview results also showed that one can have a concern for nature but not be concerned about environmental issues. Going back to Leopold's (1966) assertion that when we feel that we belong to the land, we may begin to love and respect it, we can see that even though some participants in this study loved being in the outdoors, this type of connection was not necessarily part of an overall environmental attitude of concern for environmental issues. Some respondents did not believe that environmental issues were a problem; others believed that environmental issues were real but they did not feel particularly impacted on a personal level.

Questions on whether education affects environmental attitudes deserve more research. Past research suggests that information is not always enough to achieve long-lasting attitudinal change, nor will it always lead to behaviour change (Corraliza & Berenguer, 2000; Cullen & Mony, 2003; McKenzie-Mohr, 1996). The general consensus is that accumulation of knowledge (facts) is not enough and not sufficient without an understanding of the relationships between issues and an ability to think critically (Gardner & Stern, 1996; Jickling, 1994). However, education can be much more than simply imparting information. There is evidence that some education programs are

positively associated with environmental concern and environmental attitudes (Arcury, 1990; Van Liere & Dunlap, 1980). The interviewees in this study could not pinpoint how their education had affected their environmental attitudes; however, there may have been indirect impacts that did not come to the forefront in the interviews. Education is still considered to be an important influence, even if the data in this study does not reflect that directly. Gardner and Stern (1996) point out that education may have important indirect effects over the long term by changing people's political behaviour, in turn influencing government policy and leading to the removal of those structural conditions that may be limiting environmentally friendly behaviour. "This sort of long-term effect of attitude change provides a key rationale for environmental education programs in the schools," they say (Gardner & Stern, 1996, p. 93). If citizens have been educated about the environment throughout their time in school, their eventual political choices may reflect more environmental values.

In terms of homeschooling being tied to religion, the results of this study may not be very surprising to some. The general picture of homeschooling in the mainstream consciousness is either of back to the land hippies or hard core religious people. In some ways, this study reinforces those stereotypes. However, it is important to look beyond the surface and consider how these results can be helpful in moving our environmental agenda forward. A common problem bemoaned within the environmental movement is that communication always happens only among the converted. Other populations are rarely reached with the message of sustainability, even though they desperately need to be reached if society is to progress in terms of environmental issues. If the values of sustainability could permeate every sector of society, even if just in a small way, then

there would be much better chance of realizing the political will to make needed changes. With this lens on, it can be seen how the current study can be a guidepost in thinking about reaching the sector of society that strongly adheres to the Christian religion.

Most environmentalists are left-leaning and have trouble understanding the religious right, which tends to lead to a dismissive attitude toward them. However, some scholars have documented that, even in Canada, the religious right is gaining in political influence (McDonald, 2011). Homeschoolers in particular have significant political power, especially religious ones because of their strong networks and their shared values (Mayberry, Knowles, Ray, & Marlow, 1995). American Christian homeschooling leader Michael Farris has been quoted as saying, "The Left has no clue as to what's going on in the minds of the Religious Right" (Kunzman, 2009, p. 121). Indeed, the left may have a lot to learn from the way the right has been able to organize. Evangelical Christians are extremely community oriented, they give money to their churches, they have consistent engagement with those who share their belief systems, and they are quite successful at recruiting new devotees. Nordhaus and Shellenberger (2007) blame the left for being terrible communicators, saying, "Liberals and environmentalists lack an overarching vision and a coherent ideological framework" (p. 242). This is why support for environmentalism, even among the left, is somewhat thin. Acting in an environmental manner is something that people do so that they don't feel guilty. Environmental messages tend to be depressing and negative. Contrast this to religion, which permeates all facets of life and leads to greater community engagement and a greater sense of belonging and fulfillment.

Looking deeply at both sides of the divide, there are fundamental things in common. Both want to change the world for the better (though that has different meanings currently on the two sides). Conservative Christians want the world to live according to God's word, while environmentalists want the world to live in harmony with nature. Can any common ground underlying these desires be found? Kunzman (2009) comments, "Conservative Christians see themselves as struggling to navigate a culture marked by increasing ethical diversity and a seductive consumerist-materialistic value system that threatens to weaken their communities and commitments" (p. 216). Environmental leaders are also struggling to overcome this materialistic value system. Because these two sides do not often talk to each other, perhaps they do not realize this common goal.

Homeschooling, once thought of as an educational aberration, is still not considered as an important social movement (Mayberry, Knowles, Ray, & Marlow, 1995). And yet it can be seen as a very political choice, as homeschoolers "attempt to live in a way that is consistent with one's worldview" (Mayberry, Knowles, Ray, & Marlow, 1995, p. 102). It takes great conviction to challenge the status quo and step outside of accepted norms. Kunzman (2009) asks us to "consider what it means to homeschool (whether religiously motivated or not) in a society where at least 95% of the population does otherwise" (p. 12). On the right, religious homeschoolers are choosing to put their faith front and centre in their lives, reflecting their personal beliefs. On the left, this choice often goes along with other arguably political acts such as home birth and breastfeeding (Stevens, 2001). Breastfeeding, for some, is a rejection of consumerism and corporate profit. Home birth has become quite political in some circles, with women

advocating for more control and rejecting the medicalization of birth. On both the left and the right, being a mother is sometimes seen as a political act. In the case of a Christian mother, especially a homeschooling one, she considers it a privilege to stay at home, living according to God's desire. Stevens (2001) notes, "it is conservative Protestants' deep commitment to full-time motherhood that has made them such a ready audience for home education" (p. 187). Non-religious homeschooling mothers may also consider it a privilege to stay home with their children, setting aside feminist mores that suggest women should move into the work force to be fulfilled. The same can be said for homeschooling fathers who are stepping into a non-traditional role of primary child-minder. What should be interesting to the environmental movement is that on both sides we have people who are willing to risk ridicule and disapproval to operate outside of the cultural norms. Is this not the characteristic we look for when we ask people to set aside a consumeristic lifestyle, to embrace new norms of living lightly on the land, to drive small cars or no cars at all, to eat less meat, to give up the suburban dream for high density living? Environmental literature often talks about the links between sustainability and a strong sense of family and community. Religious communities are already accomplishing this strong sense of unity. Certainly, there is more to learn.

Future Research

There is a definite need for more independent research on Canadian homeschoolers. Studies on homeschooling suffer from lack of representativeness that prevents generalisation, making broad statements about homeschooling unwise. Perhaps that is for the best given the incredible variety within this movement. However,

researchers seeking a deeper understanding can continue to improve and expand the numbers and types of homeschooling studies, including children and homeschooled students rather than just parents, and can continue to attempt controlled studies with comparison groups. Future research would be well served if a great effort could be made to construct a study design that does not rely on a self-selected sample. Studying homeschoolers is a good way to shed light on whether we need changes in our educational system, especially for younger children as it can determine the outcomes of certain teaching styles and techniques.

More research on using the internet as a recruitment tool in research would also be helpful. The survey in this study resulted in a healthy sample size and fairly good diversity in respondents. It also resulted in a high number of volunteers willing to participate in an interview. Internet surveys have great potential to be combined with methods such as case studies to delve more deeply into some of the interesting interactions of variables. A good example would be to do a case study focused on the amount of time spent outdoors in homeschooling families, which could be done in a comparative manner, using an internet survey partly as a recruiting tool. Such a study could also examine issues of pace of life and how this relates to patterns of play. The internet is now pervasive in our society and we need to refine our methods of using it for research.

Environmental attitude scales are also very deserving of more research. Some of the studies using the NEP are now quite dated and new studies would be very interesting to determine if there are long term trends in changing environmental attitudes. The CNS scale is still relatively new and much more research is needed to determine if it is truly

measuring something different from the NEP, or indeed from the many other scales used to measure environmental attitudes. Combining these environmental attitude scales with other measures, such as Schwartz's values scale or measures of alienation, apathy or happiness and civic engagement, will continue to shed light on how different variables are interconnected. A scale that focuses in on the mastery over nature attitude could also be very interesting. This research can only serve to shed light on how we can better engage citizens in environmental concerns.

Answering the question of why some people do not care about environmental issues is a long-term goal. Developing an environmentally responsible citizenry is a huge task and the scientific consensus is that our planet is under siege and we are in the midst of a true crisis. Research can help with the challenge of trying to foster connection and care for nature so that we can continue to have hope of emerging from the environmental crisis with society (and hopefully some ecosystems) intact.

The question of links between educational philosophy, structure of education and environmental attitudes forms only part of this research project, but more exploration is required to better understand the mechanisms at work. The social conversation around what is the best way to educate and lead our children is ongoing and there may never be consensus around the ultimate goals of education. As our society continues on its path and is forced to respond to crises such as climate change, we may see continuing shifts in emphasis in the curricula and structure of our learning environment. Whether one falls into a philosophy centred on the individual or on the betterment of society may also have a strong influence on other parts of life, including attitudes toward the environment.

Given that out-of-door unstructured experiences in childhood contribute to environmental consciousness, then more research is needed to make this case in the context of the educational system. For example, environmental educators may wish to seek out ways to include these experiences in their programs and conduct research to determine the impacts of these programs on the participants' attitudes. Additional areas of potential research include the role of parents as facilitators of their children spending time in nature and community planners as instrumental in the preservation of natural areas. How these influences can increase the chances that children will grow into adults who are environmentally responsible is an important question to explore. Giving children experiences to build on—moving from a connection to nature toward actions that help nature—may be key to building a more sustainable society.

Testing the impacts of time outside on environmental attitudes can also form part of the exploration of the theory of biophilia. Research has an important role to play in determining if this innate attraction and care for nature can be strengthened through “experience, learning and cultural support” (Kellert, 2005, p. 4). Experiencing nature throughout life may keep awake those innate urges of love and care for the environment. Kellert (2005) envisions that educators may be able to create a positive feedback loop where direct experience of healthy ecosystems fosters development of biophilia, leading people to protect those ecosystems. He maintains that “lacking adequate contact and experience of nature, the [biophilic] values remain atrophied or undeveloped, resulting in material, emotional, and intellectual deficits” (p. 50). The fear is that children in our society are not experiencing enough of this contact with nature and so are losing this

innate connection. There is a need to determine if this fear is being realized, and if so, how we can more effectively maintain our connection with nature.

There is a lack of research on the question of how religion is implicated in environmental concern. A more in-depth qualitative study may be needed to delve more deeply into the interactions between religiosity and environmental attitudes if we have a desire to better understand the varying mindsets. A more comprehensive array of religious variables would be beneficial, as well as indices of political beliefs.

Broader Perspective

This research project took a different turn than originally expected, leading to questions of the role of religion and on the implications of a mastery-over-nature belief system. Religious beliefs are complex and highly personal in some cases, as is their corresponding influence on environmental concern. Participants in this study ranged from deep concern for the balance between humans and nature to a feeling that Godly people were above all natural problems and would be saved when the time was right. This study revealed some of the reasons why more religious people have a different perspective on environmental issues. A mastery-over-nature attitude appeared quite strongly in the interviews and therefore should not be discounted by environmental activists as something of the past or the feeling of only a few. This worldview may be more widespread than expected and if it is the case that the religious right is gaining political influence in Canada, those wanting to encourage environmental concern among decision makers may do well to take it into account. Some religious groups have spoken out publicly in favour of action on environmental issues and the left needs to ensure that

they are not thought of as ‘the enemy’ (Hitzhusen, 2007). Rather, environmentalists need to learn better ways of engaging this mindset. Results of this study showed that a mastery-over-nature attitude is not always exclusive of a stewardship ethic. This ethic may have potential to be nourished as the Bible can be a source of environmental values. There is great potential for environmental concern and action from a group of spiritual people with strong community bonds and often political involvement. The key may be finding common ground and learning to communicate, while not expecting to agree on everything.

The original impetus for this study came from wondering if alienation from nature is part of the environmental crisis and how that ties into the educational model. Literature suggests that the lack of direct contact with nature, along with the imperviousness to consequences of environmental degradation, leads to dissociation from how our actions have an impact (Worthy, 2008). In general, the public is aware of and concerned about how humans and our industries are harming the planet (Coyle, 2005); however, the way people think about the degradation may be too abstract, too intellectual for it to lead to a change in behaviour (Gardner & Stern, 1996). This growing disassociation is a fundamental problem in our society, underlying why we continue to treat the Earth in an unsustainable fashion. How we view the environment is an integral part of who we are, reflects our cognitive and our emotional development (Thomashow, 1995) and affects decisions that we make as we grow older (Orr, 1992). This study showed that direct contact with nature, preferably spontaneous, unstructured contact in local, ordinary places in childhood, was a significant factor in the development of environmental concern.

The homeschooling respondents in this study have decided to step outside of our educational system. They have taken the incredible step of setting aside societal norms to do what they feel is right for their children and their families. Orr (1993) wishes for an education system that: 1) encourages youth to find a passion and do something that benefits the world, rather than working toward a career and staying within the dominant cultural paradigm; 2) results in understanding of root causes and systems thinking as the norm; and 3) encourages our sense of wonder, avoiding memorization, routines, abstractions, disconnection, boring curriculum, humiliation, rules, grades, and indoor learning. He writes, “The sense of wonder is fragile; once crushed it rarely blossoms again but is replaced by varying shades of cynicism and disappointment in the world” (Orr, 1993, p. 33). Facione et al. (1995) argue, “We cannot afford mass-produced education which really aims to develop only an elite few who can think, and therefore, who are trusted to make all the decisions while the rest of us receive only as much training is needed to perform mindless jobs, like cogs in a great social machine” (p. 14). Hart (2008) agrees, “The education of children in familiar ways will not give us a solution...It is oriented to a world beyond the local, it stresses competition rather than cooperation, it is about success rather than fulfillment, and it is abstract and unconnected to practical resourcefulness” (p. 193). However, as Orr (1993) goes on to write, “schooling is only an accomplice in a larger process of cultural decline. But no other institution is better able to reverse that decline. The answer, then, is not to abolish or diminish formal education, but rather to change it” (p. 34). Homeschoolers have taken up that challenge and are doing education in fundamentally different ways, often addressing those very problems that Orr outlines: many homeschoolers do not rely on rote

memorization, they do education in a more holistic manner, and they work cooperatively, especially with other homeschooling families. However, perhaps because of the powerful influence of religion, homeschoolers may not be following through with some of the aspects of what Jickling (1997) says are the defining characteristics of what makes education effective environmental education including critical thinking, examining ideologies which underlie human-environment relationships, analyzing power relationships, and learning to have an open mind to alternative world views. On the other hand, homeschoolers do tend to engage in very participatory education, integrating community, various age groups and elders, and time outdoors, as well as learning interdisciplinarily and following flexible timetables (Hart, 2008). These two spheres do overlap and this study is only the first step in understanding the linkages.

Many homeschoolers would appreciate Ron Miller's (1993) description of holistic education as "more concerned with drawing forth the latent capacities and sensitivities of the soul than with stuffing passive young minds full of pre-digested information. It is an education that prepares young people to live purposefully, creatively and morally in a complex world" (p. 17). Many homeschoolers (both religious and not-as-religious) would say that this is exactly what they are doing. However, it may not have the intended consequences as the left-leaning Miller would like it to in terms of overturning the hegemonic dominance of capitalism. On the plus side, even religious homeschoolers may emerge with high self-esteem, leadership skills, and strong community ties (Stevens, 2001). On the downside, the culture that is being perpetuated may be one of a mastery-over-nature dogma that will not lead to ecocentric values nor will it succeed in moving our society toward a new environmental paradigm.

What we might wish for all education is to address the sensory and intellectual alienation of our youth as part of the root cause of the environmental crisis. We would hope that the myth of dualism could be dispelled and that children would realize they are a part of nature (Henderson & Potter, 2001). We would wish that education would be enabling, allowing children to be able to find the connections themselves, under their own power (Weston, 1996). If these goals are accepted, parents, teachers, administrators, and policy makers need to be convinced and then communities must develop plans to make these goals a reality. Our culture must move toward giving children the desire to connect with nature and the hope that they can make a difference in the world. If we do not take this challenge on, the environmental crisis will continue to worsen with the accompanying consequences for human society.

In order to survive with a high quality of life, our society needs to reformulate and improve how we relate to our natural environment. A significant and essential part of that movement is in developing a connection with and feeling of responsibility for nature in our children. This research has examined the various factors that are at play in the development of environmental attitudes and how particular life experiences reinforce and strengthen those values. It began with the question of whether our education system may be reinforcing a human-centred, anthropocentric view of nature, but took a different path, realizing that the values held most strongly within a family have an immensely important role to play. It has been discovered that stepping outside of the educational system does not necessarily have a direct impact on environmental attitudes, as they are mediated by a complex array of variables. The homeschooling alternative is not directly generating a different level of environmental attitudes and connection to nature than public schools in

Canada; however, religious homeschoolers definitely have a different set of attitudes toward the environment that deserve further in-depth study. For, as Einstein said: “the significant problems we face cannot be solved at the same level of thinking we were at when we created them” (Kenan, 2009).

Appendix 1

Research Ethics Board approvals were obtained from Laurentian University and Brock University.

From: Research Ethics Board [reb@brocku.ca]
Sent: February 23, 2010 10:05 AM
To: Liette Vasseur; 'emilyemcmillan@gmail.com'; 'lradford@laurentian.ca'
Cc: 'Michelle McGinn'; Lori Ann Walker
Subject: REB - 09-190 VASSEUR - Accepted

DATE: 2/23/2010

FROM: Michelle McGinn, Chair Research Ethics Board (REB)

TO: Liette Vasseur, Human Studies

Luis Radford, Emily McMillan

FILE: 09-190 VASSEUR Ph. D.

TITLE: A comparison of environmental attitudes between home and public schooling families

The Brock University Research Ethics Board has reviewed the above research proposal.

DECISION: Accepted

This project has received ethics clearance for the period of **February 23, 2010 to January 15, 2012** subject to full REB ratification at the Research Ethics Board's next scheduled meeting. The clearance period may be extended upon request. ***The study may now proceed.***

Please note that the Research Ethics Board (REB) requires that you adhere to the protocol as last reviewed and cleared by the REB. During the course of research no deviations from, or changes to, the protocol, recruitment, or consent form may be initiated without prior written clearance from the REB. The Board must provide clearance for any modifications before they can be implemented. If you wish to modify your research project, please refer to <http://www.brocku.ca/research/policies-and-forms/forms> to complete the appropriate form Revision or Modification to an Ongoing Application.

Adverse or unexpected events must be reported to the REB as soon as possible with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants and the continuation of the protocol.

If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research protocols.

The Tri-Council Policy Statement requires that ongoing research be monitored. A Final Report is required for all projects upon completion of the project. Researchers with projects lasting more than one year are required to submit a Continuing Review Report annually. The Office of Research Services will contact you when this form *Continuing Review/Final Report* is required.

Please quote your REB file number on all future correspondence.

MM/sp

Research Ethics Office

Brock University | Brock Research

Niagara Region | 500 Glenridge Ave. | St. Catharines, ON L2S 3A1
brocku.ca | T 905 688 5550 x3035 | F 905 688 0748

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Laurentian University Université Laurentienne

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Creativity Office
Bureau de la recherche,
du développement et de la créativité
Tel/Tél.: 705-675-1151, 3944
Fax/Télé.: 705-671-3850

February 1st 2010

Emily McMillan, Human Studies, Laurentian University

This is to inform you that the study entitled *A comparison of environmental attitudes between home and public schooling families* (2009-12-06), presented by Emily McMillan (Dr. Luis Radford and Dr. Liette Vasseur; supervisors), has passed an ethics review by the Laurentian University Research Ethics Board.

Your ethics approval is valid until February 1st 2011. During the course of research no deviations from, or changes to, the protocol, recruitment, or consent form may be initiated without prior written clearance from the REB. The Board must provide clearance for any modifications before they can be implemented. If you wish to modify your research project, please refer to [<http://www.laurentian.ca/Laurentian/Home/Research/ResearchEthics/Research+Ethics+Board.htm?Laurentian+Lang=en-CA>] to complete the appropriate form Revision or Modification to an Ongoing Application. Please submit a request for renewal form to the Office of Research if your research involving human subjects will continue for longer than one year. Should there be any changes to the project the researcher is required to advise the Laurentian University Research Ethics Board. Please ensure that your research complies with TCPS policies. An annual report is due on February 1st 2011 (you will then be in position to request an extension). Please quote your REB file number (REB 2009-12-06) on future correspondence.

Congratulations and best of luck in conducting your research.

Robert Schinke Ph.D.

Chair of the *Laurentian University Research Ethics Board*

Laurentian University Chemin du lac Ramsey Lake Road, Sudbury, ON Canada P3E2C6 www.laurentian.ca www.laurentienne.ca

Appendix 2

New Ecological Paradigm Scale

Listed below are statements about the relationship between humans and the environment. For each one, please indicate whether you “*strongly agree*,” “*mildly agree*,” are “*unsure*,” “*mildly disagree*,” or “*strongly disagree*” with it.

1. We are approaching the limit of the number of people that the earth can support.
2. Humans have the right to modify the natural environment to suit their needs.
3. When humans interfere with nature it often produces disastrous consequences.
4. Human ingenuity will ensure that we do not make the earth unlivable.
5. Humans are severely abusing the environment.
6. The earth has plenty of natural resources if we just learn how to develop them.
7. Plants and animals have as much right as humans to exist.
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations.
9. Despite our special abilities, humans are still subject to the laws of nature.
10. The so-called “ecological crisis” facing humankind has been greatly exaggerated.

11. The earth is like a spaceship with very limited room and resources.
12. Humans were meant to rule over the rest of nature.
13. The balance of nature is very delicate and easily upset.
14. Humans will eventually learn enough about how nature works to be able to control it.
15. If things continue on their present course, we will soon experience a major ecological catastrophe.

(Dunlap, 2000)

Appendix 3

Connectedness to Nature Scale

For each one, please indicate whether you “*strongly agree*,” “*mildly agree*,” are “*unsure*,” “*mildly disagree*,” or “*strongly disagree*” with it.

1. I often feel a sense of oneness with the natural world around me.
2. I think of the natural world as a community to which I belong.
3. I recognize and appreciate the intelligence of other living organisms.
4. I often feel disconnected from nature.
5. When I think of my life, I imagine myself to be part of a larger cyclical process of living.
6. I often feel a kinship with animals and plants.
7. I feel as though I belong to the Earth as equally as it belongs to me.
8. I have a deep understanding of how my actions affect the natural world.
9. I often feel part of the web of life.
10. I feel that all inhabitants of Earth, human, and nonhuman, share a common ‘life force’.
11. Like a tree can be part of a forest, I feel embedded within the broader natural world.

12. When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature.

13. I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.

14. My personal welfare is independent of the welfare of the natural world.

(Mayer, 2004)

Appendix 4

Demographic and other questions were contained in an internet survey that allowed branching and skipping depending on which sorting category the respondent chose.

Sorting

1. Are you:

- a. a homeschooling parent
- b. a person who has been homeschooled
- c. a parent with a child in public school
- d. a person between the ages of 18 and 25 who has attended public school

(Additional Information: Definitions:

Homeschooling: “the practice in which the education of children is clearly parent-controlled or parent-directed (and sometimes student-directed) during the conventional-school hours during the conventional-school days of the week” (Ray, 2000).

Public School: a tuition free, secular educational institution up to grade twelve supported by taxes and controlled by a school board.)

Questions for Homeschooling Parents

1. The degree of structure in the practice of homeschooling varies greatly. It goes from a very unstructured (unschooling or freeschooling) learning approach, centred upon the child’s present interests, to the use of a planned, structured, and highly prescribed curriculum. The method used for your child/children is:

Very Unstructured Somewhat unstructured Unsure Somewhat structured
Very Structured

2. Please indicate the top five reasons for homeschooling (5 drop down lists: most important, second most important, third most important, fourth most important, fifth most important)
- a. Ability to accomplish more academically
 - b. Ability to teach child particular beliefs and values
 - c. Better prepare children for jobs/careers
 - d. Child’s special needs (emotional/physical/learning)
 - e. Desire for child-centred education
 - f. Desire more parent-child contact
 - g. Difficulty of getting good teachers
 - h. Emotional safety of the child

- i. Physical safety of the child
- j. Encouraged by results in other homeschooling families
- k. Frustration with the public school system
- l. Individualized learning plan or curriculum
- m. Lack of appropriate curriculum in schools
- n. Lack of discipline in schools
- o. More directly influence moral environment
- p. Other

If one of your choices was Other, please specify here: _____

Questions for Homeschooled Youth

1. The degree of structure in the practice of homeschooling varies greatly. It goes from a very unstructured (unschooling or freeschooling) learning approach, centred upon the child's present interests, to the use of a planned, structured, and highly prescribed curriculum. The method of homeschooling you feel you experienced was:

Very Unstructured Somewhat unstructured Unsure Somewhat structured
Very Structured

Demographic Questions for Parents

This section is designed to collect information about you and your spouse/partner (if applicable).

1. I am ____ years old (include drop down menu with age ranges: 18-25, 26-32, 33-44, 45-55, 56+)
2. I am male/female.
3. My spouse/partner is male/female.
4. In your family, what is the **highest** level of formal education **each parent** has completed? Please enter the number that best applies.
 1. Elementary School
 2. High School
 3. Some College
 4. College Diploma/Certificate
 5. Some Undergraduate University Studies
 6. University Degree
 7. Master's Degree
 8. Doctoral Degree

You _____

Your spouse/partner _____

5. In your family, what is **each** parent's **primary** occupation, profession, or trade? Please enter the number that best applies.

1. Professional/Technical
2. Manager/Administrator
3. Sales/Clerical
4. Craft
5. Entrepreneur
6. Semiskilled/Unskilled
7. Service
8. Farm/Ranch/Agriculture
9. Homemaker/Home Educator
10. Student
11. Retired/Disabled
12. Unemployed
13. Other (please specify)

You _____

Your spouse/partner _____

6. Please indicate the average number of hours that you work outside of the home per week (0, 1-10, 10-20, 20-30, >30)
7. If applicable, please indicate the average number of hours that your spouse/partner works outside of the home per week (0, 1-10, 10-20, 20-30, >30)
8. What is your total family annual income (choose most applicable)?

less than \$36,600; \$36,600-\$58,600; \$58,600-\$82,200; \$82,200-\$115,600; more than \$115,600

9. In your family, what best describes each parent's racial/ethnic background? Please enter the number that best applies..

1. White/Anglophone
2. White/Francophone
3. Black
4. First Nations/Aboriginal
5. Hispanic
6. Oriental/Asian
7. Other (please specify) _____

You _____

Your spouse/partner _____

10. In which province/territory do you currently live? (drop down menu)
11. Do you live in: an urban area, suburban area, or rural area?
12. Thinking about your family, how would you categorize the religious preference of yourself and your spouse/partner? Please enter the number that best applies.
 1. Agnostic
 2. Atheist
 3. Anglican
 4. Buddhist
 5. Catholic (Roman)
 6. Fundamental/Evangelical
 7. Jewish
 8. Protestant Christian
 9. Latter-day Saints
 10. Muslim
 11. Mennonite
 12. Pentecostal
 13. New Age
 14. Other (please specify)
 15. Prefer not to answer

You _____

Your spouse/partner _____

13. Thinking about your family, would you describe your religious beliefs as: strongly important, somewhat important, not that important, not at all important in your life?
14. Thinking about all of your children in general, over the course of a normal week, please give a rough estimate of how much time per day your children experience
 - a. Outdoor structured play (e.g. organized sports) (less than 30 min, 30min – 1hr, 1-3hrs, more than 3hrs)
 - b. Outdoor unstructured play (e.g. self directed games) (less than 30 min, 30min – 1hr, 1-3hrs, more than 3hrs)
 - c. Watching TV/movies or playing electronic games (e.g. video games) (less than 30 min, 30min – 1hr, 1-3hrs, more than 3hrs)
15. Please rank the following descriptions in the order that they best represent your thoughts on education (1 = best match to your thinking; 4= least like your thinking)

The goal of education should be cultivation of the intellect through the acquisition of knowledge about the great ideas of western culture in subjects such as arts and literature. [scored as Perennialism]⁴

The goal of education should be the transmission of intellectual and moral standards in a back-to-basics movement that emphasizes facts and essential skills through hard work, respect for authority, and discipline. [scored as Essentialism]

The goal of education should be learning to become thoughtful, productive citizens through democratic, project-based classrooms that emphasize interdisciplinary subject matter in a way that follows the child's interests. [scored as Progressivism]

The goal of education should be to allow the child to develop his or her own knowledge and steer his or her own personal development through diverse educational interactions and by reflecting on his or her actions and experiences, with the teacher acting as a facilitator of this process. [scored as Constructivism]

16. Are you involved in any volunteer activities? Yes/no

a) If yes, what type(s)? (Choose all that apply.)

- ☐ Environmental organization
- ☐ Arts-related organization
- ☐ Business association
- ☐ Education-related group
- ☐ Political involvement
- ☐ Religious/Church involvement
- ☐ Social services (e.g. homeless shelter, crisis line)
- ☐ Sports group
- ☐ Other (please specify)

b) Do you hold a leadership position in any of these organizations (e.g. board member, coach, lead organizer)? Yes/no

17. Have you voted in a municipal, provincial or federal election within the last five years? Yes/no

⁴ Scoring codes were not included on Survey webpage

Demographic Questions for Youth

1. I am ____ years old (include drop down menu with age ranges: 18-25, 26-32, 33-44, 45-55, 56+.
2. I am male/female.
3. What is your primary occupation, profession, or trade? (Please select the category that best represents how you spend your time)
 - a. Professional/Technical
 - b. Manager/Administrator
 - c. Sales/Clerical
 - d. Craft
 - e. Entrepreneur
 - f. Semiskilled/Unskilled
 - g. Service
 - h. Farm/Ranch/Agriculture
 - i. Homemaker/Home Educator
 - j. Student
 - k. Retired/Disabled
 - l. Unemployed
 - m. Other (please specify)
4. What is your total family annual income (choose most applicable)?

less than \$36,600; \$36,600-\$58,600; \$58,600-\$82,200; \$82,200-\$115,600; more than \$115,600
5. What best describes your racial/ethnic background?
 - a. White/Anglophone
 - b. White/Francophone
 - c. Black
 - d. First Nations/Aboriginal
 - e. Hispanic
 - f. Oriental/Asian
 - g. Other (please specify)
6. In which province/territory do you currently live? (drop down menu)
7. Do you live in: an urban area, suburban area, or rural area?
8. How would you categorize your religious preference? (Select the one that most accurately describes your preference)
 - a. Agnostic
 - b. Atheist
 - c. Anglican
 - d. Buddhist
 - e. Catholic (Roman)
 - f. Fundamental/Evangelical
 - g. Jewish

- h. Protestant Christian
 - i. Latter-day Saints
 - j. Muslim
 - k. Mennonite
 - l. Pentecostal
 - m. New Age
 - n. Other (please specify)
 - o. Prefer not to answer
9. In your life, would you describe your religious beliefs as: strongly important, somewhat important, not that important, not at all important?
10. Thinking back to when you were a child, over the course of a normal week, please give a rough estimate of how much time per day you experienced:
- p. Outdoor structured play (e.g. organized sports) (less than 30 min, 30min – 1hr, 1-3hrs, more than 3hrs)
 - q. Outdoor unstructured play (e.g. self directed games) (less than 30 min, 30min – 1hr, 1-3hrs, more than 3hrs)
 - r. Watching TV/ movies or playing electronic games (e.g. video games)? (less than 30 min, 30min – 1hr, 1-3hrs, more than 3hrs)
11. Please rank the following descriptions in the order that they best represent your thoughts on education (1 = best match to your thinking; 4= least like your thinking)

The goal of education should be cultivation of the intellect through the acquisition of knowledge about the great ideas of western culture in subjects such as arts and literature. [scored as Perennialism] ⁵

The goal of education should be the transmission of intellectual and moral standards in a back-to-basics movement that emphasizes facts and essential skills through hard work, respect for authority, and discipline. [scored as Essentialism]

The goal of education should be learning to become thoughtful, productive citizens through democratic, project-based classrooms that emphasize interdisciplinary subject matter in a way that follows the child's interests. [scored as Progressivism]

The goal of education should be to allow the child to develop his or her own knowledge and steer his or her own personal development through diverse educational interactions and by reflecting on his or her actions and experiences, with the teacher acting as a facilitator of this process. [scored as Constructivism]

12. Are you involved in any volunteer activities? Yes/no

a) If yes, what type(s)? (Choose all that apply.)

⁵ Scoring codes were not included on Survey webpage

- Environmental organization
- Arts-related organization
- Business association
- Education-related group
- Political involvement
- Religious/Church involvement
- Social services (e.g. homeless shelter, crisis line)
- Sports group
- Other (please specify)

b) Do you hold a leadership position in any of these organizations (e.g. board member, coach, lead organizer)? Yes/no

13. Have you voted in a municipal, provincial or federal election within the last five years? Yes/no

Additional Demographic Question for Public Schooled Youth

1. What is the highest level of formal education you have completed?

- a. Elementary School
- b. High School
- c. Some College
- d. College Diploma/Certificate
- e. Some Undergraduate University Studies
- f. University Degree
- g. Master's Degree
- h. Doctoral Degree

Appendix 5

Interview Guide

1. This question is optional, but if you are willing, please can you tell me your name and a little bit about yourself
2. How would you describe your attitudes toward the environment?

Examples of what I mean by environmental attitudes: should the environment be protected? Why? Does nature have value? In what way? Are humans part of nature?

- a. Does everyone in your family have these sorts of attitudes?
3. What in your life do you think led to those attitudes?
 - a. What about your religion?
 - b. What about your parents?
 - c. What about where you lived?
4. How do you think your experience with schooling (your child's school OR homeschooling) has impacted your children or your whole family?
 - a. What about specific impacts on your children's and your family's environmental attitudes?

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